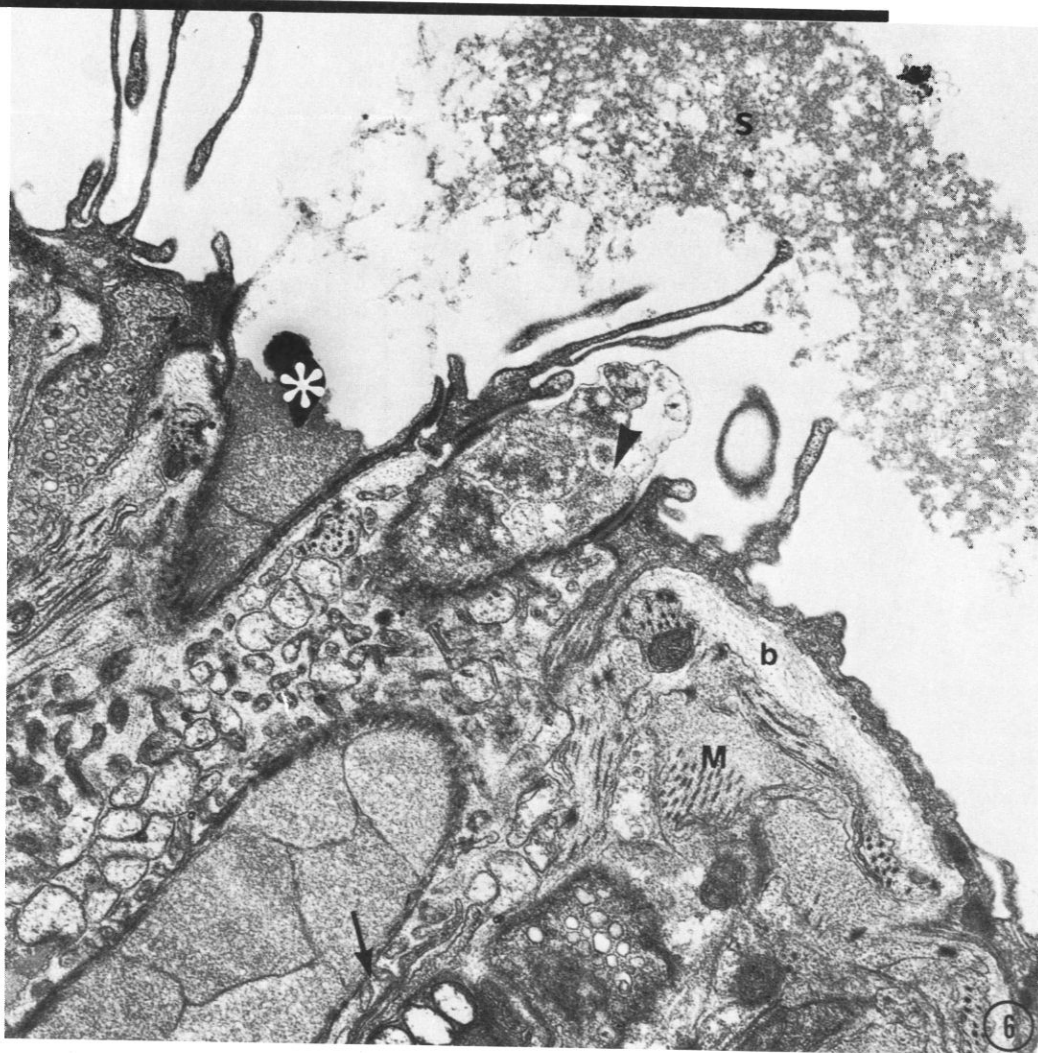




U. S.
NAVY

Medicine



April 1973

UNITED STATES NAVY MEDICINE

Vol. 61

April 1973

No. 4

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NAVMED P-5088

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Credits: All pictures are Official U.S. Navy Photographs unless otherwise indicated.

An incredible electron micrograph of a cercarial oral sucker graces our front cover, and interested readers are invited to study the splendid paper on Schistosomiasis by Drs. M.A. Stirewalt and C.H. Dorsey. For further particulars, see page 11.

The photo on page 2 shows VADM Donald L. Custis, Surgeon General of the Navy (right) receiving a warm welcome from RADM Oscar Gray, Jr., Commanding Officer, Naval Aerospace and Regional Medical Center upon arrival in Pensacola 3 Mar 1973. Subsequent briefings and tours of the Center covered: training conducted at the Naval Aerospace Medical Institute; research conducted at the Naval Aerospace Medical Research Lab; and medical care provided for approximately 80,000 eligibles in the Pensacola area, at the Naval Hospital and five regional dispensaries. (Courtesy of PAO, Naval Aerospace and Regional Medical Center, Pensacola, Fla.)

The continued support of Ms. S.B. Hannan, BUMED Code 2133, and the Illustration and Exhibits and Photography Divisions of the Medical Graphic Arts Dept., Naval Medical Training Institute, NNMC, Bethesda, Md., is gratefully acknowledged.



from the Chief

The Navy today has become an incredibly sophisticated enterprise which demands the active use of expert management techniques to remain a viable instrument in this nation's foreign and domestic policies. We are responsible for utilizing these techniques in the Medical Department and it is a big job for we are, by any standards, a big business.

To meet the many challenges of Navy Medicine today we need leaders. The quality of leadership, though largely inherent, must be nurtured to full effectiveness through introspection and self-understanding. Above all else leadership, in these people-oriented times, requires an empathy for others and the ability to cope with the emotional reactions that inevitably occur when people work together in an organization.

We are facing a crisis of the greatest magnitude in military medicine today, but we are not alone in our embattlement, for this country's entire health care delivery system is groaning with change. We are fortunate in that military medicine has a much clearer promise of a quality future than many other crises-ridden sectors of the health care scene.

Our major problem stems from the pending loss of the doctor draft and its immediate consequences. An all-volunteer force, with the ultimate support of the President and the Congress, can be a tremendous opportunity for us because the assurance of quality health care is fundamental to such a concept. Its corollary is a high quality medical cadre with career incentives to attract the volunteer health professional and his paramedical colleagues. Our crisis, our problem, is in getting from here to there, but I have no doubt we shall succeed. The greatest renewals are born of crises.

The above paraphrased excerpts were taken from VADM Custis' address to the Captain selectees, at the Indoctrination and Management Seminar on 26 Feb 1973.

We must first maintain our resilience by holding on to our people; we cannot afford to let impatience and disillusionment dissuade them. Second, we must fight off those who, in our crisis, think they smell blood — who through misguidance would dismember us. There are powerful forces located in high places throughout the government bent on radical restructuring of military service-oriented health care delivery. The purple suit concept of many years ago is being dusted off for reconsideration today. Paradoxically the military medical services have even been advised their comprehensive system of health care is so good that it is discriminatory against the non-military citizen. These particular critics go so far as to recommend a diminished level of active duty dependent medical care and seriously question the promised right of medical care in our facilities for retirees and their dependents.

The message is clear; we are being told to stick to patient care and let others design and control the system that provides this care. This concept is a real and present danger and all of us should be aware of what it means to us and to our patients.

This is not to say that we shouldn't take a close look at ourselves. No longer can we afford the luxury of tolerating non-producers no matter what their rank; these must be weeded out and with some ruthlessness if necessary.

We don't need a Peter Drucker to tell us that our "turbulent society has been plummeted into an awesome age of discontinuity." We are aware of the complexities that have developed as a result of the impact of the rapid social, economic, and political changes of the past ten years for they have been felt in the Medical Department. Change is everywhere and we must change if we are to survive the challenges to our future.

Will you consider your dedicated involvement in the control of that change too much of a responsibility? Or will you stay the course, share the responsibility, and see this crisis through!

We need your support, your ideas, your leadership, for these burdens do not challenge alone some amorphous Bureau. They challenge you, they challenge me. You are Navy medicine; I am Navy medicine. Your career prospects never looked brighter, and our problems never looked tougher. You are needed. I know that I can rely upon you to rise to the challenge in the same manner as those who have always recognized the exhilarating effect of being needed have done — with total, responsible and dedicated commitment to our Navy community and to the people in it. We need no less a commitment from every member of the Medical Department.





DEPARTMENT OF THE NAVY
ASSISTANT CHIEF OF THE BUREAU OF MEDICINE AND SURGERY (DENTISTRY)
AND
CHIEF OF THE DENTAL DIVISION
WASHINGTON, D. C. 20390


NAVY DENTAL TECHNICIANS

April 2, 1948-1973

On the occasion of the Twenty-fifth Anniversary of the Dental Technician Rating, it is a pleasure to extend my best wishes and congratulations.

Your history of accomplishments is a matter of record and attests to the outstanding professional performance and devotion to duty that Dental Technicians are noted for throughout the Navy and Marine Corps.

The future of your Rating is more promising than ever, especially with the increased emphasis being placed on the role of ancillary personnel. All avenues within the areas of training, patient care, and career pathways are being studied with the ultimate goal of, not only making dental health care delivery more effective, but also expanding the prestige and professional involvement of Dental Technicians.


J. P. ARTHUR
Rear Admiral, DC, USN

Schistosomiasis and *Schistosoma mansoni*

By M.A. Stirewalt, Ph.D., American Foundation for
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and
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Schistosomiasis, also called snail fever or bilharziasis, is a scourge which looms today as the largest unsolved infectious disease problem in tropical medicine. It is estimated that of the 3 billion 782 million people on this planet in mid-1972, at least 1/20 have clinically diagnosed schistosomiasis. Because this disease is endemic in many tropical areas in which medical care is grossly inadequate, this estimate fails to consider the vast numbers of people who are subjected to exposure again and again during their daily lives, but whose infections escape medical notice.

Schistosomiasis is one of the very ancient parasitic diseases, dating back before the days of the Egyptian Pharaohs. In their magnificent tombs, mummies have

been found with schistosome eggs in the walls of the urinary bladder. Bas-reliefs on the walls of the tombs, as well as ancient papyri, present symptoms typical of present-day schistosomiasis.

LIFE CYCLE

The disease has been scientifically studied only since the early years of this century. Then man began to work out the life cycle of the parasite: the place of snails, as intermediate hosts in which development of the parasite must take place; the miracidial stage wherein snails are infected; and the infective stage to man, in which the cercariae emerge from snails to penetrate the intact skin of hosts.

The series of events which leads to disease in man makes up a complicated life history. In feces or urine, eggs of the parasite are passed from the infected vertebrate host's body. The excreta are often deposited into water or on the banks of streams, or ditches, from which they are washed into the water. When the schistosome eggs reach water, they hatch quickly if the temperature is favorable and oxygen abundant, since the embryo is already well developed. Minute, ovoid, ciliated miracidia emerge. In this stage, for a period

From the Bureau of Medicine and Surgery, Navy Department, Research Task No. MR041.09.01.0130 and ONR Contract No. 00014-70-C-0331.

The opinions or assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

The experiments reported herein were conducted according to the principles set forth in "Guide for Laboratory Animal Facilities and Care," prepared by the Committee on the Guide for Laboratory Animal Resources, National Academy of Sciences - National Research Council.

of 24 hours or less, the schistosome is free-swimming and nonparasitic. Within this time, the miracidium must find and penetrate the proper snail or it dies, for it does not ingest food. Within the snail the miracidium develops into a primary sporocyst, which in turn enlarges and proliferates secondary sporocysts, each of which may produce millions of cercariae during the life of the snail in which it lives.

Five or six weeks after infection of the snail, cercariae begin to emerge and swim vigorously in the water. Again, the schistosome is free-swimming and, again, its effective life in this stage is limited to about one day by its endogenous energy sources. This larval schistosome must find and penetrate the skin of the proper vertebrate host, such as man.

Within the human body, the parasite makes its way through the skin into the circulatory system, passes a stage of development in the lungs, and matures in the venous vessels of the liver and the branches of the portal system. Mature worms mate, the long slender females living within the gynecophoral canal of the males. After fertilization the eggs are laid, usually in the small branches of the mesenteric vessels. Many are filtered out in the liver; many more move through the walls of the intestines or urinary bladder into the lumen of the organ involved, and are thus passed from the host's body.

The asexual multiplicative process continues in the snail for its lifetime with the production of secondary sporocysts and cercariae; the sexual phase of the life cycle goes on in the final, or vertebrate host, without multiplication of the parasite but with the production of eggs.

SCHISTOSOME SPECIES

Three species of schistosomes, or perhaps schistosome complexes, regularly parasitize man:

(1) *Schistosoma mansoni* in Africa, throughout much of Egypt, West Africa, Liberia, Sierra Leone, and the Democratic Republic of the Congo; in the Western Hemisphere in Brazil, Venezuela, Dutch Guiana, Puerto Rico, Saint Kitts and elsewhere in the Antilles Islands.

(2) *Schistosoma haematobium* in Africa: Egypt, with an estimated one-half of its people infected with either or both of these worms; Tunis, Algeria, Morocco; the east coast from Ethiopia to the Cape; to the west, especially Liberia and Sierra Leone; and throughout the Union of South Africa. In many other areas, especially around the Mediterranean, schistosomes are endemic, though apparently the areas are more restricted.

(3) *Schistosoma japonicum* apparently confined to the East, in many districts of China and practically the

whole Yangtze valley; in many areas of Japan, though the known foci are comparatively small; in Formosa and the Philippine Islands of Leyte, Samar and Mindanao; in the Celebes and in Kong Island, Cambodia. It is in the Pacific area that schistosomiasis became of special military interest in World War II. Fifteen hundred to 2,000 cases were returned from this area for treatment.

DISEASE IN MAN

Three Stages.

In man, the course of the disease may usually be divided into three stages, though light infections may be practically asymptomatic: (1) an incubation period in which urticarial, pulmonary, and febrile manifestations may be present; (2) the period of deposition and extrusion of eggs, when they appear in stools or urine, often associated with diarrhea or hematuria, and when toxic symptoms consisting of anoxia, headache, generalized pain in the back and extremities, fever and night sweat are at their worst; and (3) the final period of great tissue destruction and proliferation which may eventually be characterized by cachexia, esophageal varices, cirrhosis of the liver, ascites and death.

Adaptation of the Schistosome.

The schistosome is a very clever parasite. It has adapted with great success to human customs and habits related to its need for water. It has adapted to man's agricultural habits in many ways. Since crops must be watered in warm, dry climates, schistosomes have made the most of this fact. Water storage reservoirs, irrigation ditches, rivers and lakes which supply irrigation water are all excellent habitats for the necessary snail intermediate hosts. In Egypt, man has for years lifted the irrigation water from river or storage tank to the field ditches, either by pumping the water up by foot, or lifting it by hand. In either case, he gets wet and thus exposes himself to cercariae emerging from the infected snails living in the water. Defecation and urination go on in fields, especially where water is close by, providing parasite eggs to continue the parasite life cycle.

In the Orient, rice fields must be flooded and the plants set in water and cultivated by hand. Again, urination and defecation frequently occur right in the fields. Here, then, are all the elements for the successful schistosome: infected hosts, man or reservoir hosts, waste products deposited in water, snail hosts at hand, and the necessity for man to come in contact with water.

The schistosome has adapted to human domestic habits. Irrigation ditches or the rivers or lakes provide

for many the only source of domestic water for drinking, cooking, washing dishes or clothes, bathing and playing; and these bodies of water also serve as the sewers which carry the vertebrate hosts' wastes out of sight.

The parasite has adapted to man's recreational needs. The shallow shores of rivers and lakes are ideal habitats for snails. Here, where the people come to swim, boat or fish, is an ideal schistosome setup.

Probably most surprising is the parasite's adaptation to man's religious customs. Muslim law requires ceremonial washing after elimination of urine or feces. What better insurance could there be for the parasite's life cycle to be completed than the religious requirement for deposition of waste products in water so that ritual washing may follow immediately? Even temple pools maintained for the ceremonial washing have been found to be habitats for infected snails.

Taking these facts into consideration, it is not surprising that schistosomiasis is a disease that is spreading. As man travels more widely and moves more freely, as he impounds more water in vast reservoirs like that behind the Aswan High Dam, as he increases irrigation, as he plants three crops a year instead of two, and allows no intervening time for the ditches to dry and the snails to die, he provides ideal conditions for the spread of schistosomiasis.

Control of Disease.

It would seem that a parasite of the schistosome type and distribution would be easy to control, and this is true in temperate countries where sanitary facilities are accepted necessities of life. It is not the case where schistosomiasis is endemic, for these are tropical regions with poor sanitation and without protected water supplies. One means of potential control, elimination of the snail hosts, has been possible — but only for short periods in very limited areas. Another suggested control measure, sanitary disposal of human excreta, simply cannot be enforced. It is impossible for man to avoid all contact with cercaria-infested water. Elimination of egg-passers by treatment of the human population is too gigantic a task to contemplate, and even if it were to be achieved here and there, non-human reservoir hosts could often replace man in the parasite's life cycle. Furthermore, drug therapy is only about 75% effective.

Perhaps the most promising approach to breaking the cycle is at the point where cercariae infect man by penetrating his skin. Development of a means of protecting man against infection, however, requires understanding of the very close relationship between cercariae and skin. We are just beginning to achieve such understanding.

In this paper we will consider, in order, the structure of host skin and the morphology of the cercaria. In a subsequent report we plan to present the route and mechanisms of the parasite's penetration of host skin, insofar as we now understand the infective process.

HOST SKIN STRUCTURE

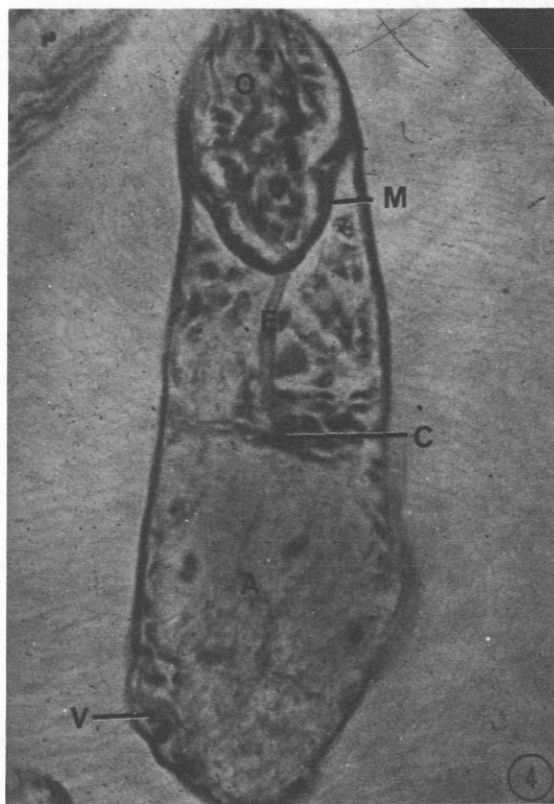
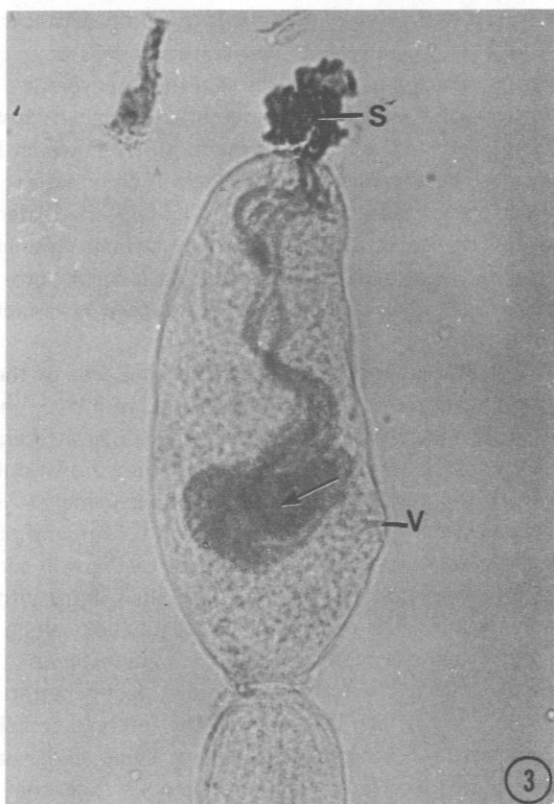
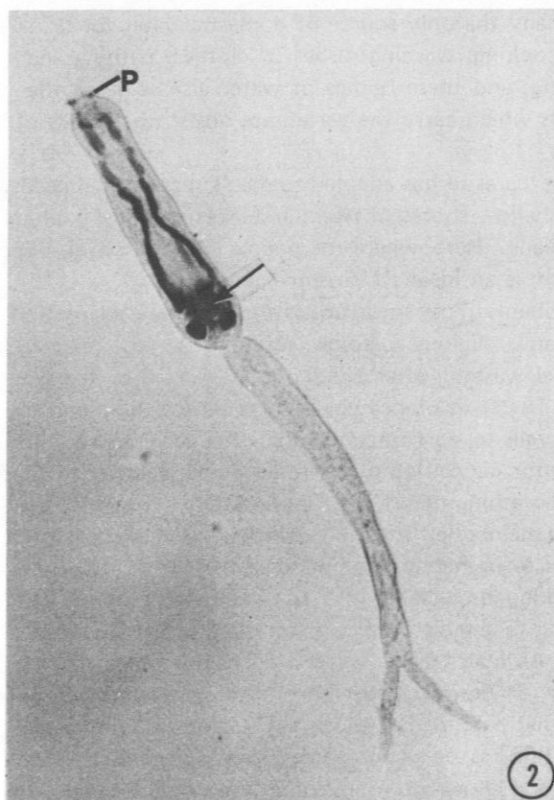
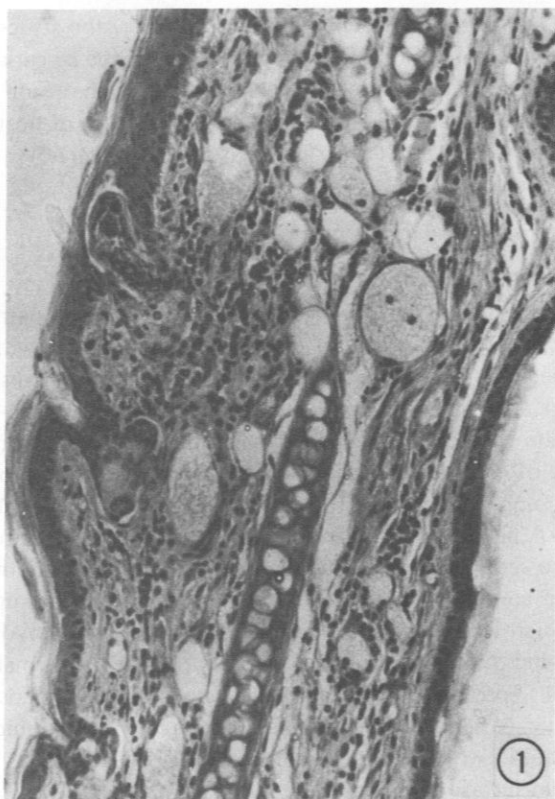
Skin is essentially similar in its basic morphology in all mammals, but it varies tremendously in such details as thickness and quality of its layers among different species and breeds of mammals, and in body regions, age and sex.⁸ Since schistosome cercariae can penetrate the skin of most mammals, these details must not be of great significance. It is therefore the basic morphology of skin which should be addressed (Figure 1).

A penetrating cercaria makes its first contact with projecting hairs, or with the skin surface itself. Both are covered with a continuous film of skin-surface lipid which Rothman¹⁶ has described as a thin greasy hydrophilic ointment. It is produced in part by epidermal cells and in part by the sebaceous glands. It spreads quickly and thoroughly over the surface in the liquid state in which it is secreted, but solidifies at about skin-surface temperature.

The Horny Layer.

The layer beneath the skin surface lipid film, the horny layer (*stratum corneum*), is made up of stacks of thin, dead, greatly flattened epithelial cells or squames. Each squame possesses a tough envelope consisting of the rugged cell membrane which encloses packets of compact fibrous protein, much of which is keratin. The squames are embedded in an adhesive cellular cement and their edges are closely articulated and intertwined; so this layer is truly a tough, resilient, essentially impermeable membrane. It is highly protective for the subjacent tissues, although it is variable in thickness.⁷

The horny layer is formed as the living cells of the epidermis are moved surfaceward, are keratinized, and die. This occurs predominantly in the subjacent keratogenous zone, which is composed of transitional cells in which the keratinization process is occurring. It is this zone which provides the usual route of migration for the parasites, which travel parallel to the skin surface for varying lengths of time after their entry into the epidermis. The dermo-epidermal junction, along the epidermal basement membrane similarly serves those migrating schistosomes (young post-penetration schistosomes), which break across the intervening epidermal tissue. The compact layers of living epidermal cells situated interior to the keratogenous zone, the



spiny (*stratum spinosum*) and germinal (*stratum germinativum*) layers, do not presently appear to have special significance for the migrating larvae, except that these cell layers, and the epidermal basement membrane may present barriers to migrants.

In sharp contrast to the compact structure of the avascular epidermis, the dermis is a loose-netted mesh of fibers and small blood vessels, embedded in a viscous ground substance. Relatively large collagen fibers, small reticulin fibers and intermediate-sized elastic fibers abound. The ground substance appears to be a protein-mucopolysaccharide complex containing hyaluronic and chondroitin sulfuric acids in approximately equal ratio.^{8,11,16}

Pilosebaceous Apparatus.

Embedded in the skin, in numbers which vary with the species and with its age, sex, and body region is the pilosebaceous equipment which produces and supports the hairs. Several morphologic features of the pilosebaceous apparatus play a part in the migration of schistosomes through skin. The pilosebaceous canals are lined with a continuous cone of epidermis, to the level of the openings of the canals of the sebaceous glands. The sebaceous glands themselves consist of a loose tissue containing sebaceous cells. The glands are not enclosed in a basement membrane but are surrounded by a connective tissue capsule, within which lie small flattened peripheral gland cells.¹⁴ Sebum, produced by the sebaceous glands, is moved outward through the piloseba-

ceous canals and is mixed with lipid from the horny layer, to form the skin surface lipid film.

In this brief description, only those characteristics of skin have been mentioned which have been found, thus far, to be important in the schistosome infection of the vertebrate host. Other characteristics will doubtless prove to be significant, as more is learned about the infective process. Details of skin structure, which vary greatly from animal to animal and skin region to region have been disregarded, perhaps due to ignorance of their significance.

CERCARIAL MORPHOLOGY

Against this picture of skin structure, the morphology of the infective parasite, the cercaria must be considered. As we understand it at the moment, a cercaria is a self-contained motile sac of cells adapted specifically for invasion of skin, and thereafter for the development of a mature schistosome. This nonparasitic stage does not feed, so its life expectancy in the cercarial state is about one day. A little less than 1 mm long, the cercaria consists of a body and a forked tail (Figure 2). The tail accounts for about half of the length, and represents a locomotory organ that is lost during skin penetration. Two suckers (Figure 3) located on the body provide for attachment to surfaces. One makes up the oral end of the body from which it is separated by a cone of heavy muscle fibers (Figure 4). The other sucker, located ventrally near the aboral end of the body, is much smaller (Figure 3).

Figure 1.—Light micrograph of a section of mouse-ear skin. A schistosome of *Schistosoma mansoni* (young post-penetration schistosome) cut in longitudinal sections lies below the horny layer with its oral end projecting into a sebaceous gland. (x220)

Figure 2.—Light micrograph showing the dorsal view of the body and tail of a cercaria of *Schistosoma mansoni*. The postacetabular glands (arrow) have been stained by the periodic-acid Schiff's reaction (PAS). The gland funduses in the aboral end of the body (arrow), the long ducts leading orally, and the duct pores (P) on the oral tip all appear dark. (x240)

Figure 3.—Light micrograph of a lateral view of the body of a cercaria of *Schistosoma mansoni*. The preacetabular glands (arrow) have been stained with purpurin (alizarin 6). Note the gland funduses (arrow) to the left of the slight protrusion of the ventral sucker (V). The ducts leading orally and the secretions (S) beyond the oral end all appear dark. (x450)

Figure 4.—Light micrograph of a longitudinal section of the body of a cercaria of *Schistosoma mansoni* stained with Holmes-Luxol Fast Blue. Oral sucker (O). Musculature of the oral sucker (M). Esophagus (E). Gut cecum (C). Ventral sucker (V). Acetabular glands (A). (x940)

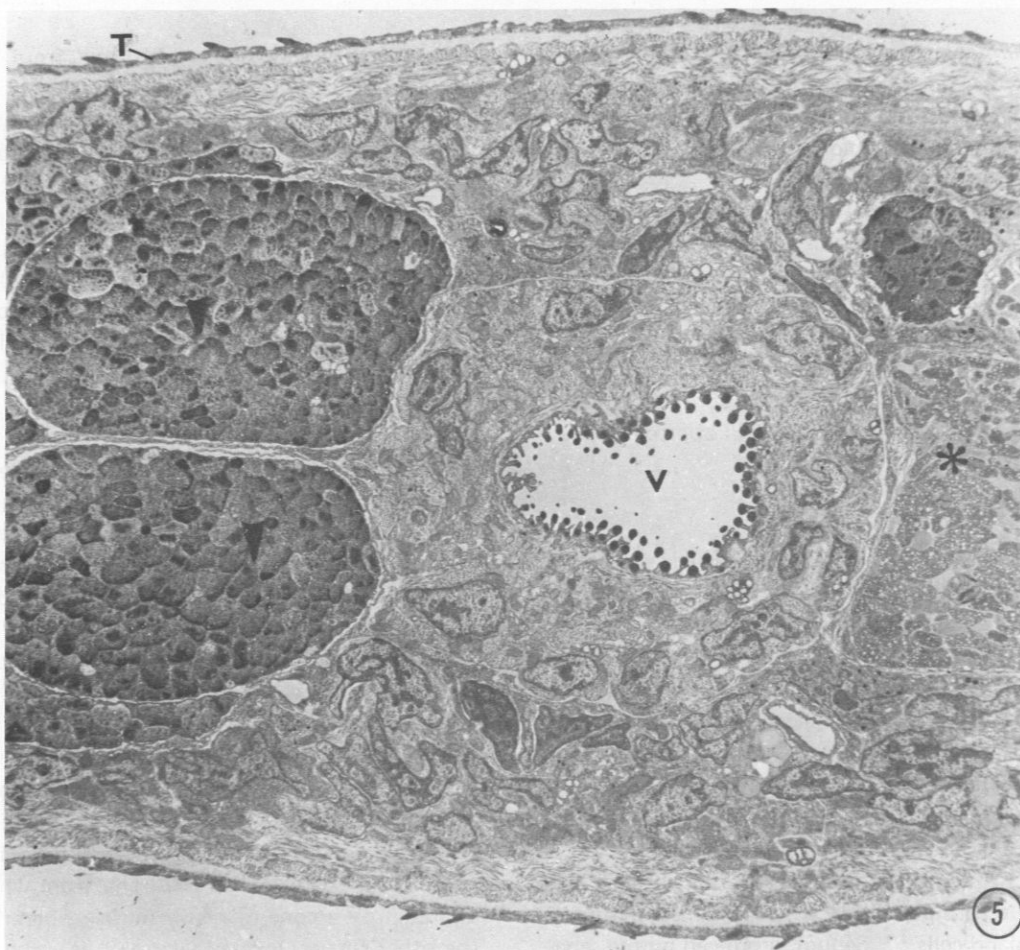


Figure 5.—Electron micrograph showing the immediate vicinity of the ventral sucker (V). Parts of the preacetabular glands (asterisk) anterior to the ventral sucker (V) and postacetabular glands (arrow head) posterior to the ventral sucker can be seen. Higher magnifications of the secretory granules of the acetabular glands are shown in Figures 13 and 14. Spinose tegument (T). (x9,000)

Body.

The body appears ultrastructurally as a loose network of cells with relatively small perikaryons and very long intertwined processes.¹ The outer layer has been described by several investigators.^{5,12,13,17,18} It is a spinose integument whose perikaryons lie sunken in the parenchyma (Figures 5, 8, 9). It has an outer limiting membrane which is continuous around the spines. The outer integument is rough-surfaced, anuclear and is usually considered to be a syncytium.¹⁷ Its granular matrix contains mitochondria but no clearly-defined Golgi bodies, endoplasmic reticulum or ribosomes (Figures 8, 9).

Two basic types of ovoid inclusion bodies are present. One exhibits varying degrees of electron-density

and is usually confined to vesicles (Figure 8). The other has lamellated membranes and generally contains an inner dense core (Figure 10).

Many microtubules, some continuous with vesicles, are present (Figure 9). Some are derived from infoldings of the limiting membrane adjacent to the basal lamina; others are received through cytoplasmic bridges continuous with perikaryons of the inner parenchymal area (Figures 8, 9). The integument is covered with a mucous coat which stains positively with dyes for neutral mucosubstances.²²

Separating the integument from the body musculature below is a basal lamina (Figures 6, 8, 9) composed of fibrous material suspended in a light homogeneous matrix (Figure 9).

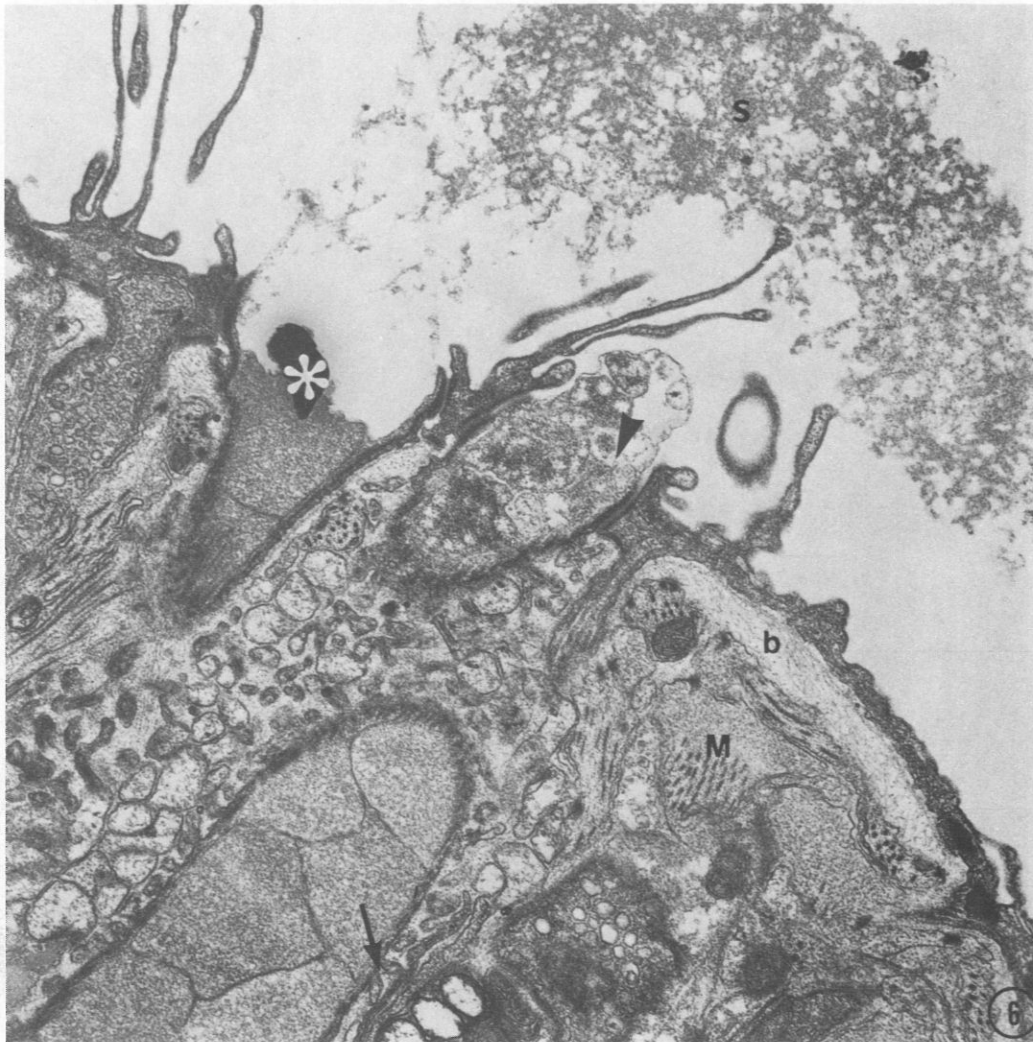


Figure 6.—Electron micrograph of a part of the anterior end of the oral sucker showing ducts of the preacetabular gland (arrow head) and postacetabular glands (asterisk) open on the surface. Notice secretory material (S) ejected from the postacetabular duct. Clavate-like processes of the plasma membrane (arrow). Muscle (M). Basal lamina (B). (x28,000)

The body musculature is double-layered: an outer layer of circular muscle fibers and an inner layer of longitudinal fibers (Figure 8).¹⁷ Bundles of circular and longitudinal muscle fibers are arranged in a closely knit band (Figure 8). In transverse or longitudinal profile, the fibers consist of thick and thin myofilaments randomly distributed in a longitudinal plane (Figure 8). Nuclei are located in the underlying sarcoplasm which is disfigured by compression of neighboring parenchymal cells (Figure 8). The sarcoplasm contains a uniform distribution of medium granular material, probably representing ribosomes, and more discrete electron-dense glycogen particles (Figure 8). Numerous mitochondria are located along the periphery of the layer of muscle fibers (Figure 8). Sarcoplasmic reticulum located on the periphery of the fibers is sparse (Figure 8) when

compared with that in the fibers of the musculature of the tail (Figures 13 and 14).

Enclosed by the integument and body musculature is the network of muscle, nerve and parenchymal cells in which are embedded the simple, tubular, probably nonfunctional digestive system; the osmoregulatory or excretory system consisting of flame cells, collecting tubules and reservoir; the neuropile; five pairs of large unicellular acetabular glands, each made up of a flask-shaped fundus and a long process which serves as a secretory duct (Figures 2 and 4); and within the oral sucker, a "head gland" with multiple ducts which communicate with the integument.

The fine structure of the digestive tube, the osmoregulatory system, the head gland, and the neuropile will not be discussed here, since these organs are not

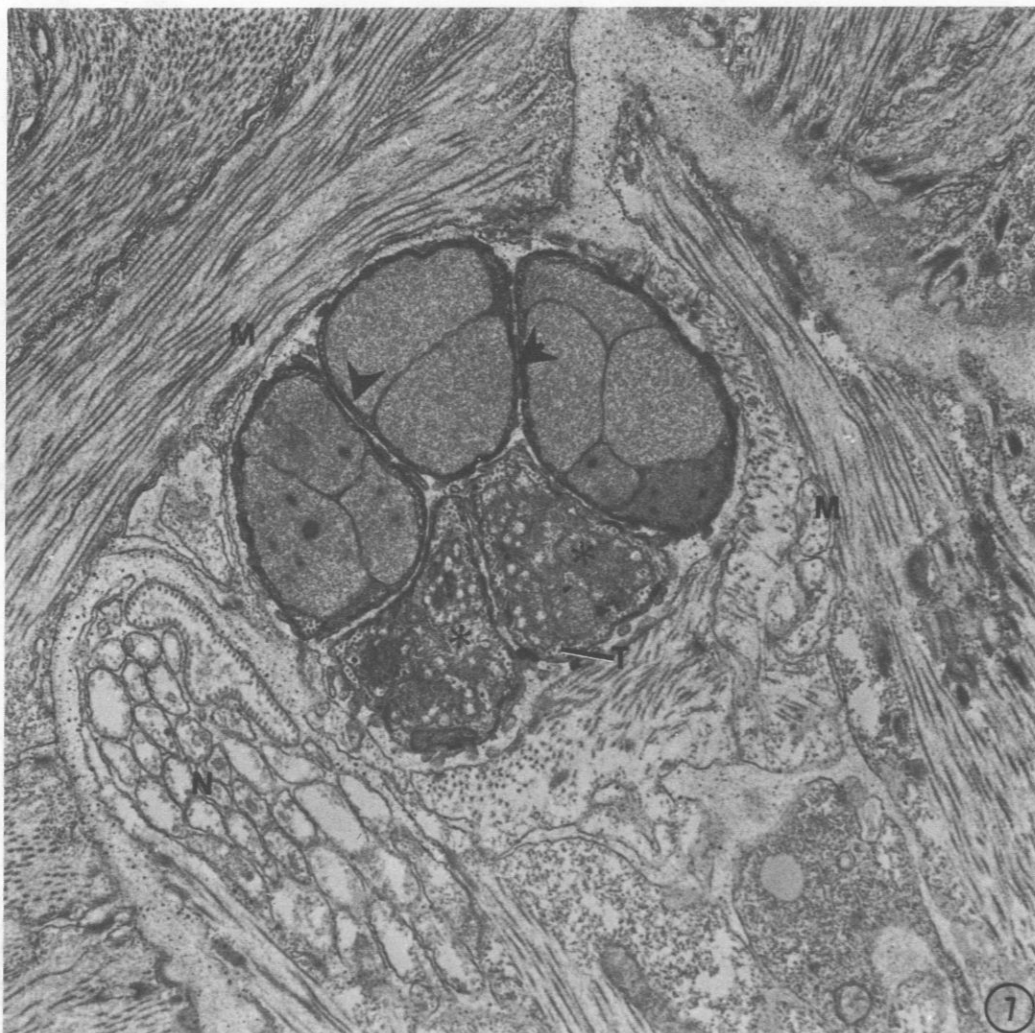


Figure 7.—Electron micrograph of ducts of postacetabular glands (arrow heads) and preacetabular glands (asterisks) piercing the lateral aspects of the musculature of the oral sucker. Muscle (M). Nerve processes (N). Microtubules (T). (x21,000)

directly involved in cercarial entry into skin; descriptions may be found elsewhere.^{2,3}

Acetabular Glands.

Secretions of the acetabular glands, on the other hand, do play an important role in the infective process and are depleted during the penetration of skin.^{18,20} The glands are histochemically and functionally of two types. Three pairs of postacetabular glands produce mucus (Figure 2); two pairs of preacetabular glands (Figure 3) contain proteolytic enzyme(s)²¹ and calcium.^{10,19}

As seen with the electron microscope, the glands lie loosely held in the parenchyma (Figure 5) attached by desmosomes at the oral end, at the juncture of the duct openings with the integument (Figure 6).¹ Coarse,

elongated protrusions of the fundal membrane, however, make contact with surrounding cells, probably providing some support (Figure 11). Muscle cell processes are attached to the glands intermittently throughout their entire lengths (Figure 12).

In a cercaria that is ready to invade a host, the glands of both types are essentially sacks filled with secretory material which appears in the electron microscope in the form of membrane-bound granules (Figures 11 and 12).^{1,4} The subcellular organelles associated with the production of secretory granules have disappeared. The cytoplasm is compressed into a narrow peripheral area in which a few mitochondria remain (Figure 12). Vacuoles are scattered subjacent to the plasma membrane (Figure 12). Nuclei are usually degenerate. Once emptied of their secretion

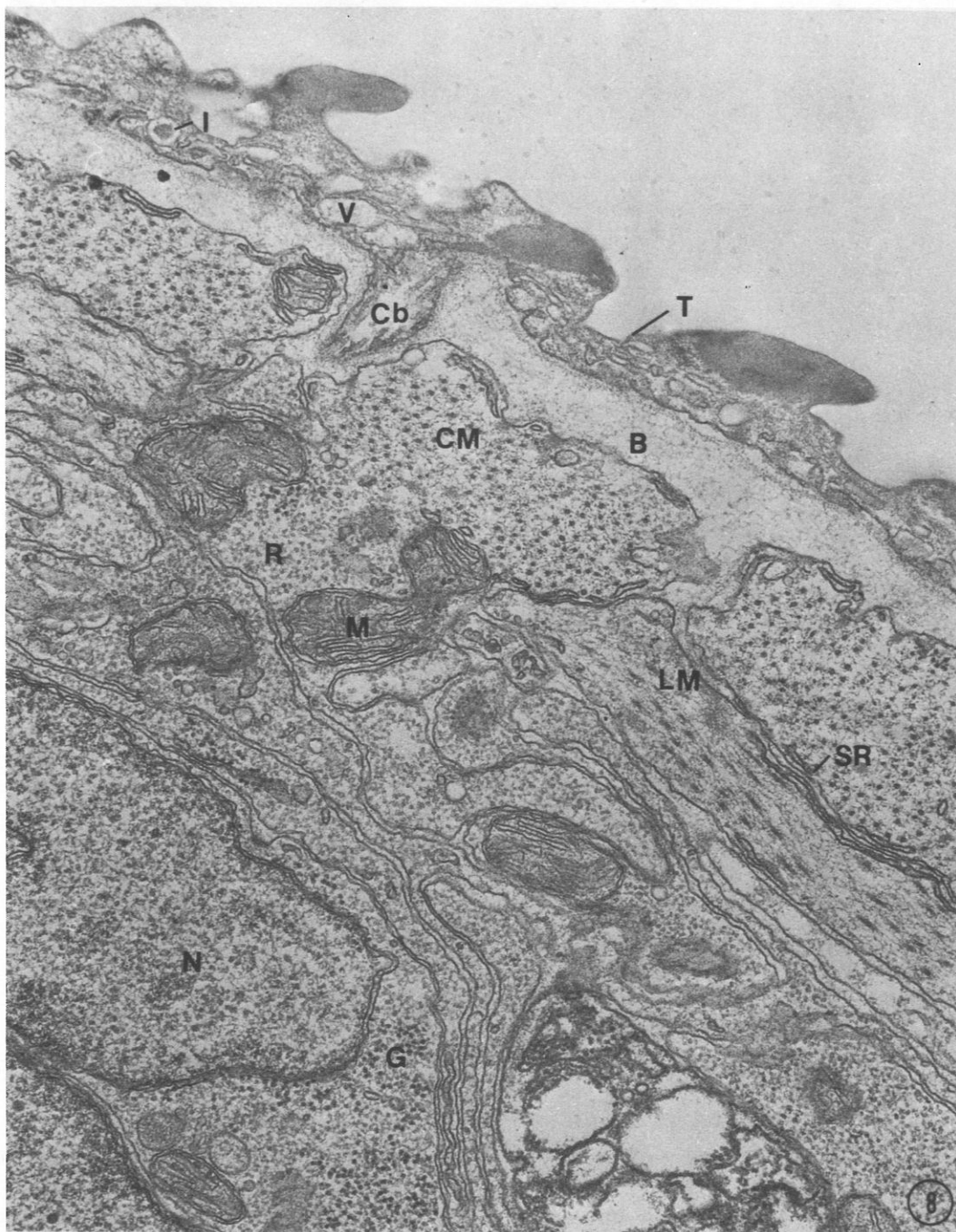


Figure 8.—Electron micrograph showing the peripheral body plan of a cercaria on a longitudinal plane. Notice the rough, anucleate, spinose tegument (T). No clearly defined subcellular organelles can be recognized in the tegument although a number of vesicles (V) are present. Inclusion bodies (I) are sometimes found in these vesicles that originate from underlying cytons (see Figure 10) which communicate with the tegument by cytoplasmic bridges (Cb). The filamentous basal lamina (B) is situated between the tegument and the bundle of muscle fibers. Both the circular muscle fibers (CM) and the longitudinal muscle fibers (LM) have thick and thin myofilaments. Nucleus (N) in underlying sarcoplasm. Ribosomes (R). Glycogen (G). Mitochondria (M). Sarcoplasmic reticulum (SR). (x35,000)

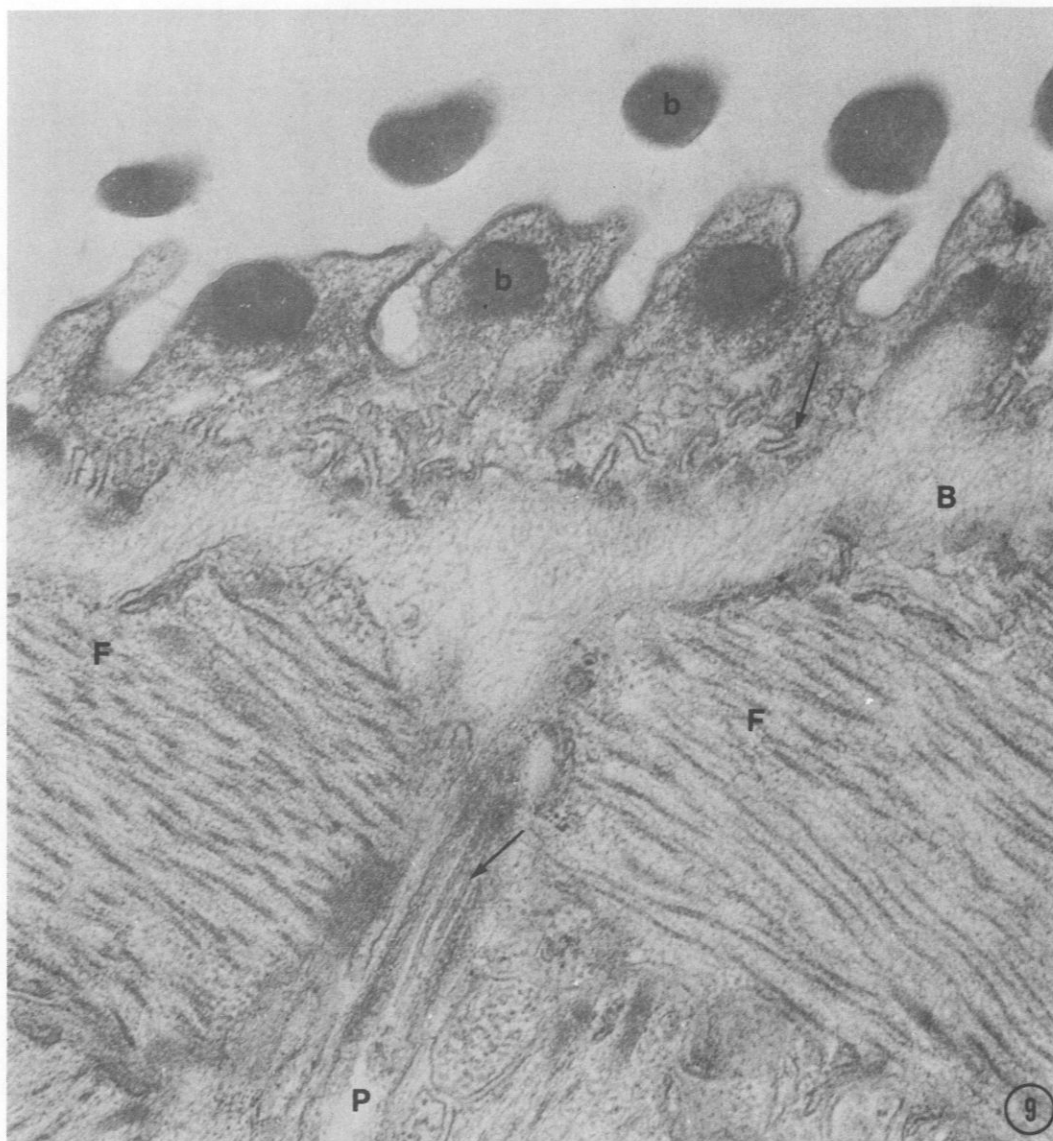


Figure 9.—Electron micrograph of the peripheral body plan of a cercaria on the transverse plane. The dense bodies (b) are cross sections of tegumental spines. The tegument is rich with microtubules (arrow). Notice the cytoplasmic process (P) containing microtubules (arrow); this is part of a cytoplasmic bridge which joins cytons in the visceral area with the tegument. Notice the elaborate display of myofilaments (F) in the muscle fibers. Basal lamina (B). (x56,000)

during invasion of host skin, the remnants of the glands disappear.

The ducts of the glands collect laterally into two distinct bundles, each containing three post- and two preacetabular elements (Figures 2 and 7). Each bundle of ducts is ensheathed by interdigitating long processes of muscle cells interspersed with nerve cells and their processes.^{1,4} The two duct bundles wind orally, alternately mesial and together and then lateral and separated, piercing the lateral aspects of the musculature of the oral sucker (Figures 2, 3 and 7) and opening

separately on its rim (Figure 6) in two semicircles of pores in areas called oral crescents (by Doctors Robson and Erasmus¹⁵). Microtubules are oriented longitudinally around the periphery of each individual duct (Figure 7). The plasma membrane of the ducts is elaborated into narrow processes which become more clavate orally (Figure 6).

The Tail.

The tail is more simply organized than the body, although the integument, basal lamina and the arrange-

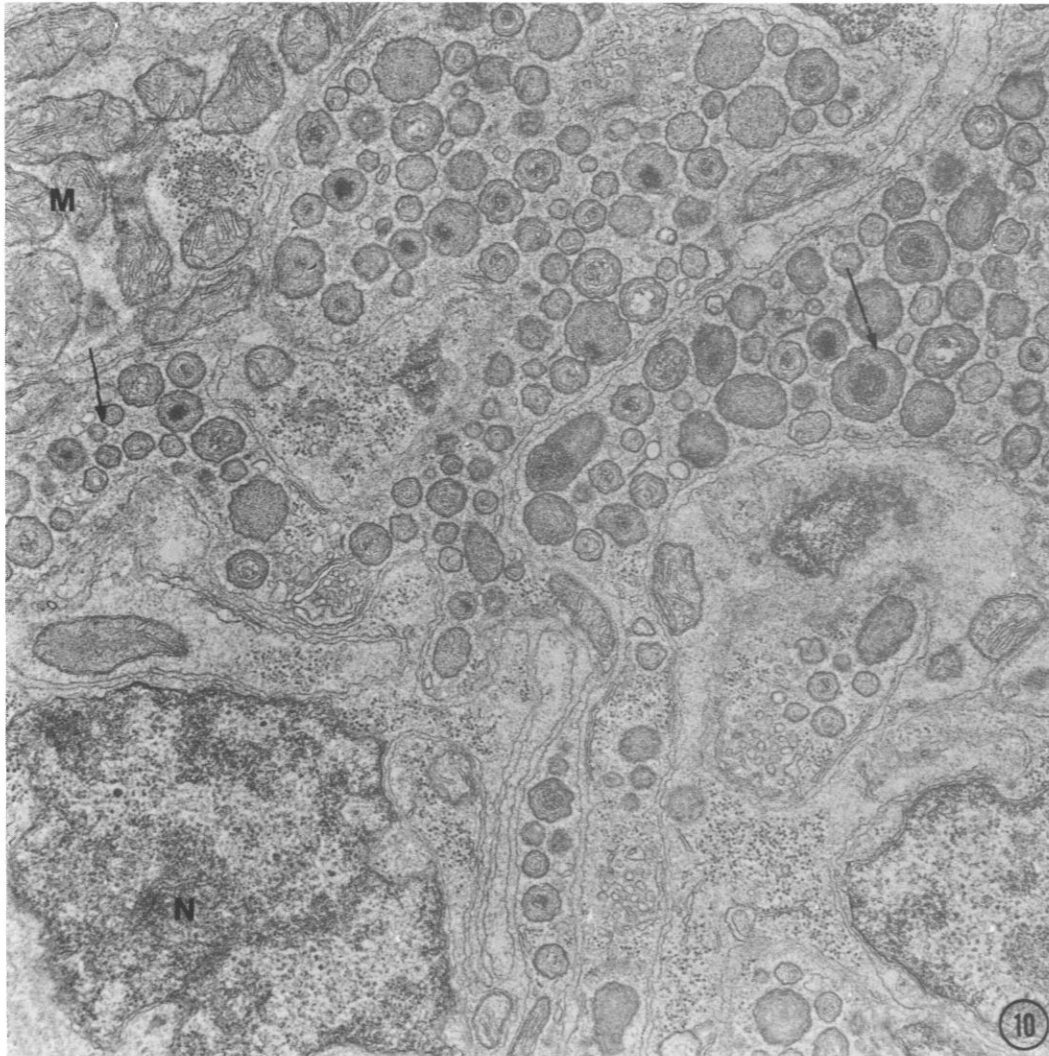


Figure 10.—Electron micrograph showing inclusions of varying sizes in cytons located in the viscera that are connected to the tegument by cytoplasmic bridges. Although many of the bodies (arrow) vary in size, only the smaller ones have been observed in the tegument. The function of these bodies is not known. Mitochondria (M). Nucleus (N). (x17,500)

ment of peripheral musculature are similar (Figure 13). The cellular network is looser and only the sensory, nervous and osmoregulatory systems are continuous through body and tail. As befits a locomotor organ, the caudal musculature is much stronger than that of the body (compare Figure 13 with Figure 8). In the tail, two layers of longitudinal muscle fibers (Figure 13) or three layers of longitudinal muscle fibers (Figure 14) usually underlie the single layer of circular muscle fibers. In addition to the musculature of the

body wall, heavy diagonally placed muscle are present in the base of the tail.⁹

The matrix of the sarcoplasm is light with a fine homogeneous granular material interpreted as ribosomes (Figure 14). It contains (Figure 13) dense patches of glycogen, numerous mitochondria around the base of muscle-fiber bundles, nuclei with darkly staining chromatin in dense clumps, and an abundance of sharply delineated sarcoplasmic reticulum. In longitudinal profile, stacks of the sarcoplasmic reticulum lie along the

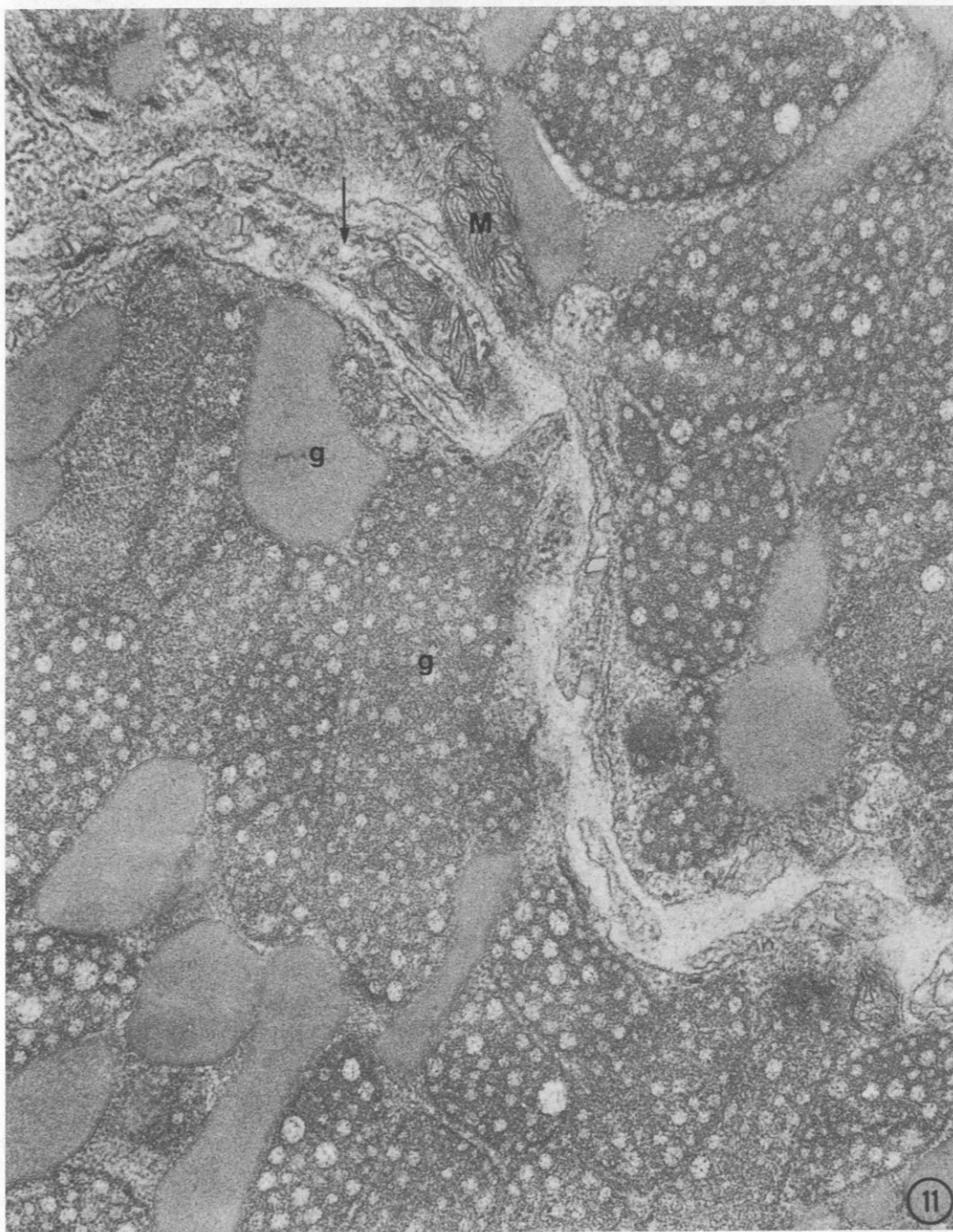


Figure 11.—Electron micrograph of parts of two preacetabular secretory glands. Notice the two types of secretory granules (g). Coarse elongated protrusions (arrow) often contact and intermesh with other cells, probably providing support. Mitochondria (M). (x63,000)

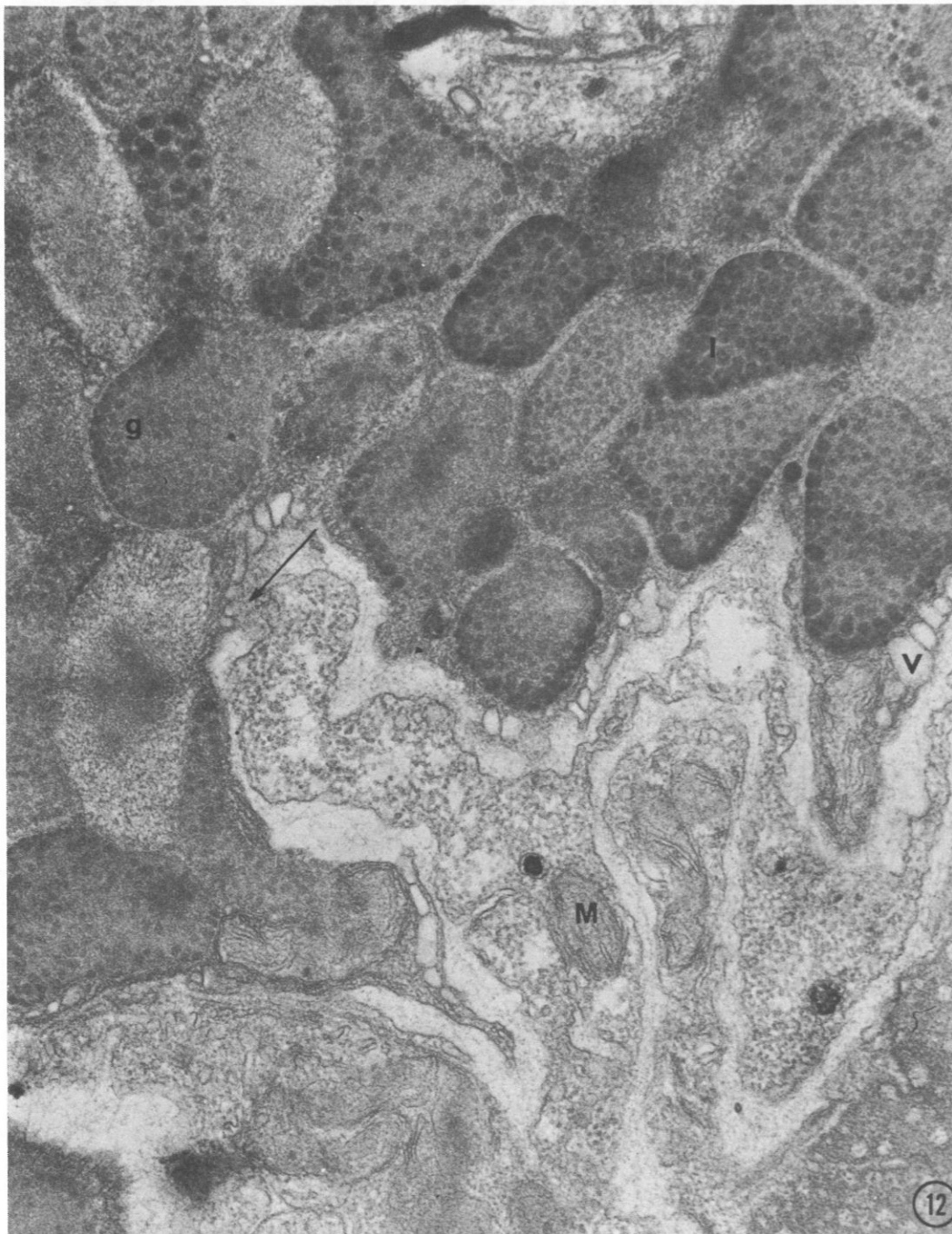


Figure 12.—Electron micrograph showing part of a postacetabular gland. Notice the secretory granules (g) of the postacetabular gland with their electron dense inclusions (I). Muscle cell processes (arrow) are intermittently attached to the postacetabular gland along its entire length. Vacuoles (V) subjacent to the cell membrane. Mitochondria (M). (x63,000)

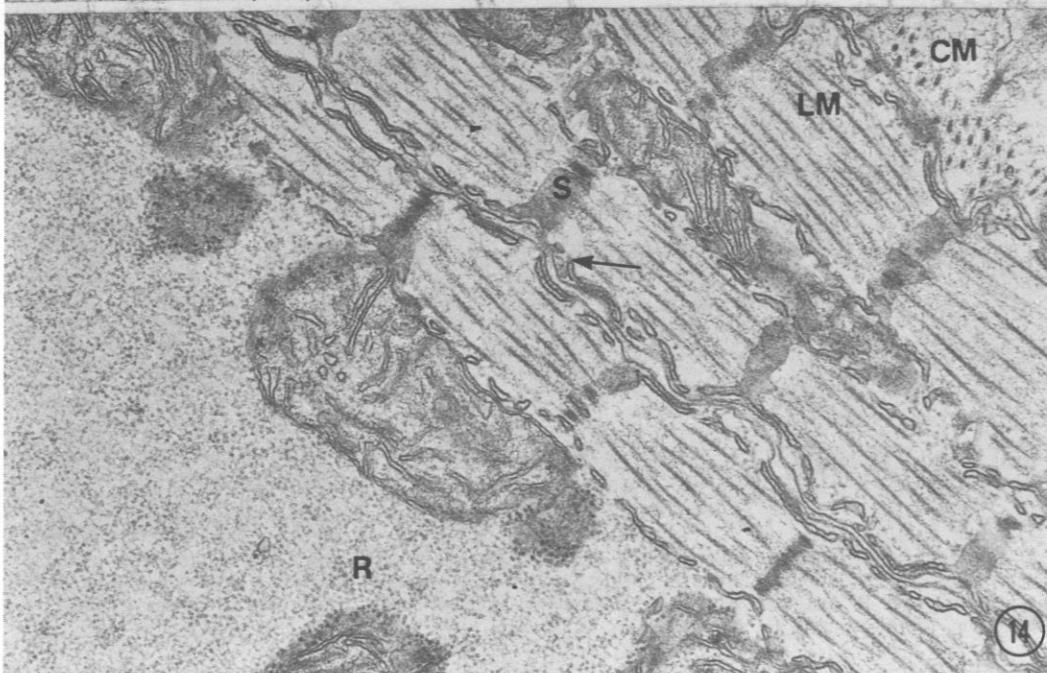
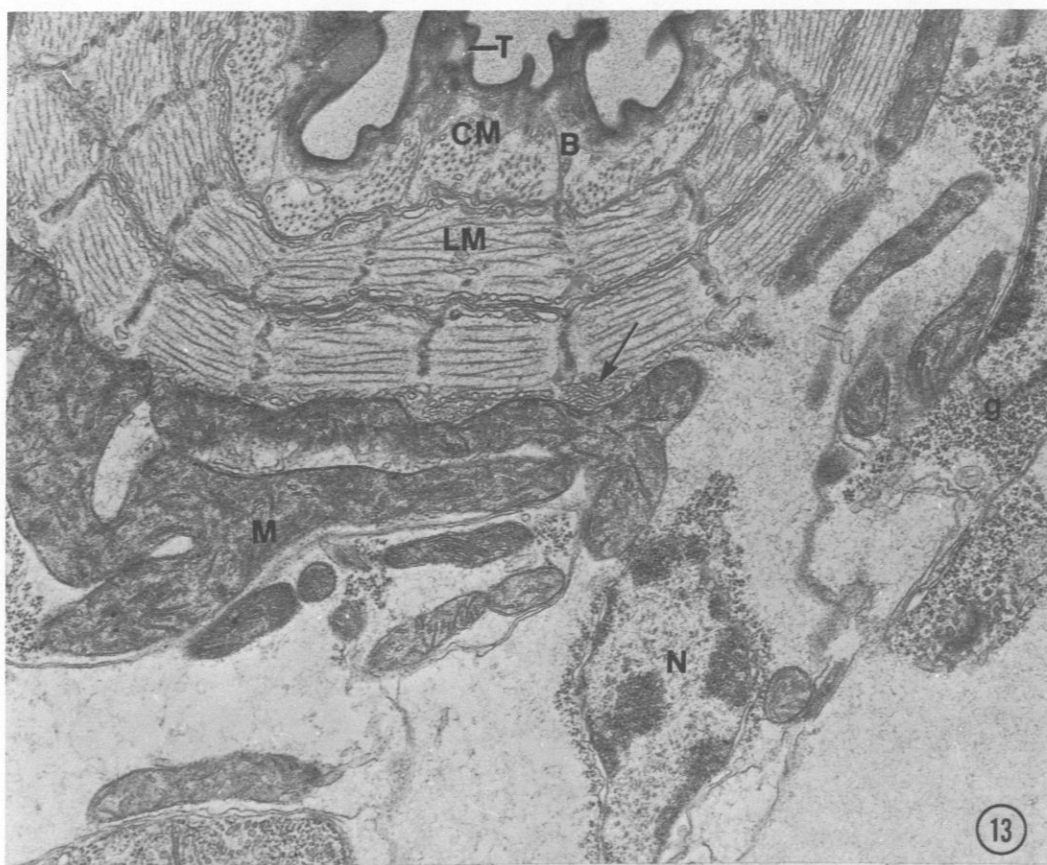


Figure 13.—Electron micrograph of tail muscle. The tegument (T), basal lamina (B), and muscle (LM) are similar to that found in the body of the cercaria. Notice the single layer of circular muscle fibers (CM) and two subjacent layers of longitudinal muscle (LM). Sarcoplasmic reticulum (arrow). Mitochondria (M). Glycogen (g). Nucleus (N). (x21,000)

Figure 14.—Electron micrograph of tail muscle. Notice the three layers of longitudinal muscle (LM). The sarcoplasmic reticulum (arrow) lies along the periphery of the fibers and continues as dilated saccules (S) at regular intervals confluent with the dense I-bands of the sarcomeres. Ribosome (R). Circular muscle (CM). (x63,000)


periphery of the muscle fibers and continue as dilated saccules at regular intervals confluent with the dense I-bands of the sarcomeres (Figure 14).

SUMMARY

This paper has been concerned largely with the background information necessary to the development of

our main interest, the skin penetration mechanisms used by cercariae in their infection of vertebrate hosts, including man. We have touched briefly upon the disease — its importance, distribution, course in man, epidemiology, and control; the life history of the parasite; and pertinent aspects of the structure of skin and the schistosome cercaria. In a subsequent report we propose to present cercarial penetration mechanisms.

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Therapeutic Diet Control System

By LTJG Steven R. Lamar, MSC, USNR,
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(Photos by HM3 Lawrence R. Kennedy, USN.)

INTRODUCTION

The management and control of the modified hospital diet is frequently a perplexing and difficult task. Although the modified diet is carefully planned and meticulously calculated by the therapeutic dietitian, the elements of the special diet are often poorly communicated to the food-production and tray-assembly staff. This problem is particularly evident in facilities where selective menus are provided only for the regular hospital diet — a policy that in many institutions is based on production limitations consistent with the most efficient utilization of available personnel and the maintenance of low gross-ration costs. In such situations, the qualitative and quantitative parameters of the modified hospital diets are dictated by the special diet production menu. Historically, the regular diet menu has served as the foundation from which the specific modifications of the various therapeutic diets evolve. However, even with specific foods outlined and categorized on the special diet production menu, the process of communicating this multitude of conceivable variables to the tray-assembly personnel is often ineffective. As an inevitable result of this communication breakdown, the modified diet, although accurate and precise on paper is frequently compromised in reality. In response to the need for an efficient and effective method for transmitting the specific requirements of the therapeutic

diet to those food-service personnel involved in the tray-assembly process, the following system has been developed and is presently in operation at the Naval Hospital Charleston, S.C.

THE SYSTEM

The therapeutic diet-control system is designed to accommodate 34 of the more common modified diets (Figure 1). It consists of 100 "diet cards" that indicate by meal the specific therapeutic diet, and a list of the general categories of foods to be served (see sample 1800-calorie diabetic diet, Figure 2). Portion sizes, when applicable, are specified for each food item listed. When "1 SERVING" of a specific food group is indicated, the "SERVING" refers to the standard portions specified in the universal food-exchange lists for diabetic diets. The diets are printed on color-coded cards, which are keyed to a commonly-used commercial diet kit.*

The system is not intended to replace the basic therapeutic diet production menu, nor is it designed as a substitute for the supervision of a qualified dietitian. The system *must* be used in conjunction with the production menu, and it is intended to enable the dietitian to communicate more effectively with the tray-assembly staff by clearly illustrating the requirements of various modified diets.

The diet-card system should also be used in conjunction with the specific qualitative parameters indicated

The opinions or assertions contained herein are those of the author and are not to be construed as official or reflecting the views of the Department of the Navy or the naval service at large.

*Yellow: Sugar Substitute-Salt-Pepper.
Green: Sugar-Salt-Pepper.
Pink: Sugar-Salt.
Gray: Sugar-Salt Substitute-Pepper.

- | | | |
|---------------------------|----------------------|--------------------------------|
| 1. 800 CALORIE | 12. 250 mg. SODIUM | 24. BLAND III |
| 2. 1000 CALORIE | 13. 500 mg. SODIUM | 25. BLAND II |
| 3. 1200 CALORIE | 14. 1000 mg. SODIUM | 26. BLAND I |
| 4. 1500 CALORIE | 15. 2000 mg. SODIUM | 27. FAT RESTRICTED |
| 5. 1800 CALORIE | 16. CLEAR LIQUID | 28. CONTROLLED FAT-CHOLESTEROL |
| 6. 1200 CALORIE DIABETIC | 17. FULL LIQUID | 29. 1200 CAL. CONT. FAT-CHOL. |
| 7. 1500 CALORIE DIABETIC | 18. DENTAL LIQUID | 30. 1500 CAL. CONT. FAT-CHOL. |
| 8. 1800 CALORIE DIABETIC | 19. DENTAL SOFT | 31. 20 gram PROTEIN |
| 9. 2200 CALORIE DIABETIC | 20. SOFT | 32. 40 gram PROTEIN |
| 10. 2600 CALORIE DIABETIC | 21. FIBER RESTRICTED | 33. PURINE RESTRICTED |
| 11. 3000 CALORIE DIABETIC | 22. MINIMAL RESIDUE | 34. 400 mg. CALCIUM |
| | 23. BLAND IV | |

Figure 1.—"SPECIAL DIET CARDS"

NAVAL HOSPITAL
CHARLESTON, SOUTH CAROLINA

NAME: _____ WARD: _____
DIET: 1800 CALORIE DIABETIC MEAL: BREAKFAST

JUICE: 1 SERVING UNSWEETENED FRUIT JUICE
ENTREE: 1 EGG (no added fat, milk, or cream)
BKFS MEAT: _____
CEREAL: 1/2 CUP COOKED or 3/4 CUP DRY CEREAL
TOAST: 1 SLICE TOAST
FAT: 1 tsp. BUTTER or MARGARINE
MILK: 1 CUP (8 oz.) WHOLE MILK
BEVERAGE: COFFEE or TEA/LEMON

CONDIMENTS: SUGAR SUBSTITUTE-SALT-PEPPER
1 pkg. DIETETIC JELLY

8

NAVAL HOSPITAL
CHARLESTON, SOUTH CAROLINA

NAME: _____ WARD: _____
DIET: 1800 CALORIE DIABETIC MEAL: DINNER

SOUP: 1 CUP FAT-FREE BROTH or BOUILLON
ENTREE: 2 oz. MEAT, POULTRY, or FISH
STARCH: 1 SERVING POTATO or SUBSTITUTE
VEGETABLE: 1 SERVING VEGETABLE "A"
SALAD: VEGETABLE "A" SALAD
DRESSING: 1 pkg. (1/2 oz.) FRENCH or SALAD DRESSING
DESSERT: 1 SERVING DIETETIC or FRESH FRUIT
BREAD: 2 SLICES BREAD
FAT: 1 tsp. BUTTER or MARGARINE
MILK: _____
BEVERAGE: COFFEE or TEA/LEMON

CONDIMENTS: SUGAR SUBSTITUTE-SALT-PEPPER

8

NAVAL HOSPITAL
CHARLESTON, SOUTH CAROLINA

NAME: _____ WARD: _____
DIET: 1800 CALORIE DIABETIC MEAL: SUPPER

SOUP: 1 CUP FAT-FREE BROTH or BOUILLON
ENTREE: 3 oz. MEAT, POULTRY, or FISH
STARCH: 1 SERVING POTATO, or SUBSTITUTE
VEGETABLE: 1 SERVING VEGETABLE "B"
SALAD: VEGETABLE "A" SALAD
DRESSING: ZERO DRESSING
DESSERT: 1 SERVING DIETETIC or FRESH FRUIT
BREAD: 1 SLICE BREAD
FAT: 1 tsp. BUTTER or MARGARINE
MILK: _____
BEVERAGE: COFFEE or TEA/LEMON

CONDIMENTS: SUGAR SUBSTITUTE-SALT-PEPPER

8

NAVAL HOSPITAL
CHARLESTON, SOUTH CAROLINA

NAME: _____ WARD: _____
DIET: 1800 CALORIE DIABETIC MEAL: BEDTIME

MEAT: 1 oz. MEAT or CHEESE
BREAD: 1 SLICE BREAD
FAT: 1 tsp. BUTTER or MARGARINE
FRUIT: _____
MILK: 1 CUP (8 oz.) WHOLE MILK

CONDIMENTS: SUGAR SUBSTITUTE-SALT-PEPPER

8

Figure 2.—Special Diet Card: 1800 Calorie Diabetic Diet.

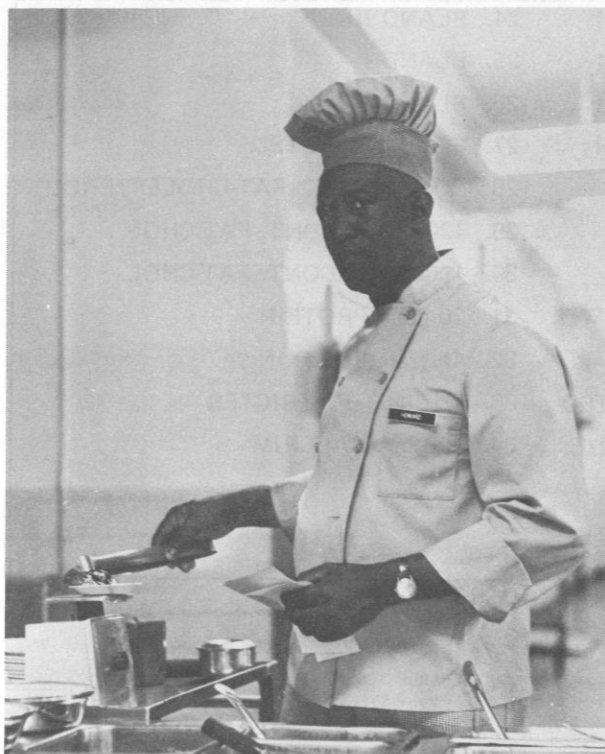


Figure 3.—Leadingman James H. Howard weighs correct entree portion as indicated on diet card.

in the hospital-diet manual. For example, "One Serving Sodium-Restricted Vegetable" as listed on the 1000 mg. Sodium Diet should not imply that any vegetable could be served. Those vegetables listed in the "Foods to Avoid" column, in the appropriate section of the diet manual should not be served. This same concept is applicable to other therapeutic diets, and for this reason the necessity of coordinating the information contained in the diet manual with the therapeutic diet production menu must be recognized. This system has been developed around the information contained in AFM 160-8, *Applied Clinical Nutrition*,* the diet manual presently used as a reference in naval hospitals.

ADVANTAGES OF THE SYSTEM

The immediate benefit derived through the use of this system is that food-service personnel are provided with a qualitative and quantitative menu outline for therapeutic diets which is used in a manner similar to the regular-diet menu in the tray-assembly process (Figure 3). The diet card is also used as a guide for

*AFM 160-8, *Applied Clinical Nutrition*. Department of the Air Force, Washington, D.C. 1 June 1968.

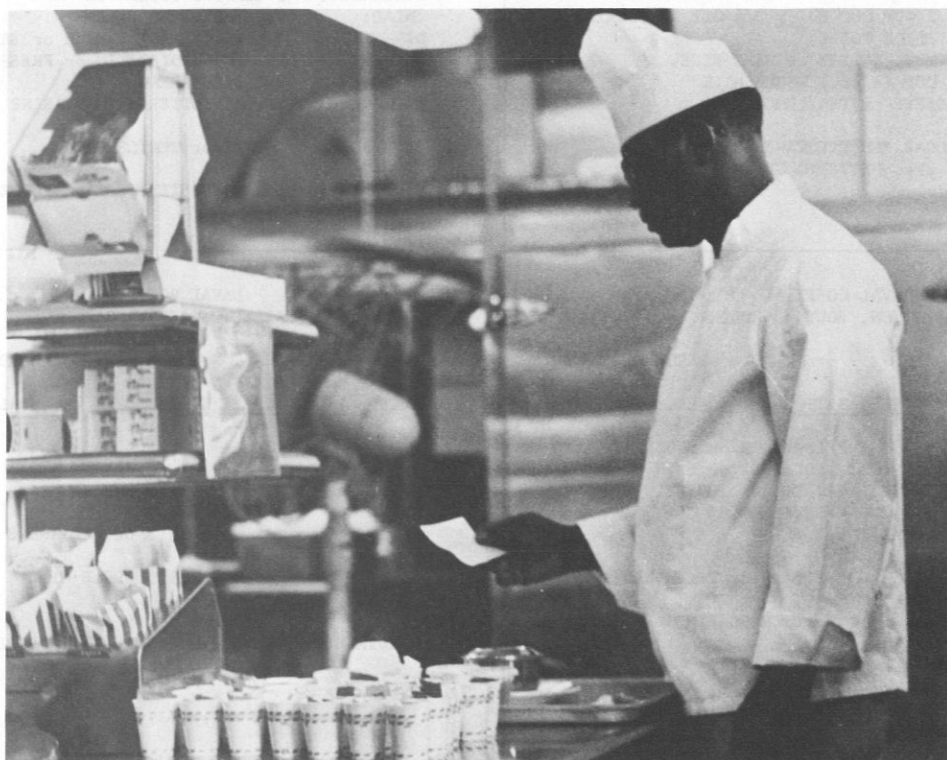


Figure 4.—Pantryman Mannie Dunmeyer checks for accuracy of special-diet tray prior to delivery to ward.

checking the accuracy of each special-diet tray. This procedure is accomplished at the completion of the tray-assembly process by a food-service employee (Figure 4) and at the point of service through audit by ward personnel (Figure 5). The diet cards have also proven to be extremely useful in counseling patients on modified diets (Figure 6). The diet cards assist the hospital dietitian in familiarizing patients with their dietary requirements, so that a prescribed regimen may be followed upon discharge from the hospital.

SUMMARY

A method for communicating the specific requirements of therapeutic diet orders to food-service personnel in the tray-assembly area has been developed. This system functions as the vehicle for coordinating the parameters of specific therapeutic diets with the production and service phases of patient-tray assembly. The system represents an extension of the planning and supervisory responsibilities of the hospital dietitian as applied to the management of the modified hospital diet. However, for those institutions that lack the services of a full-time dietitian, it is felt that this system could prove to be useful in providing therapeutic diets with a minimum of direct supervision.

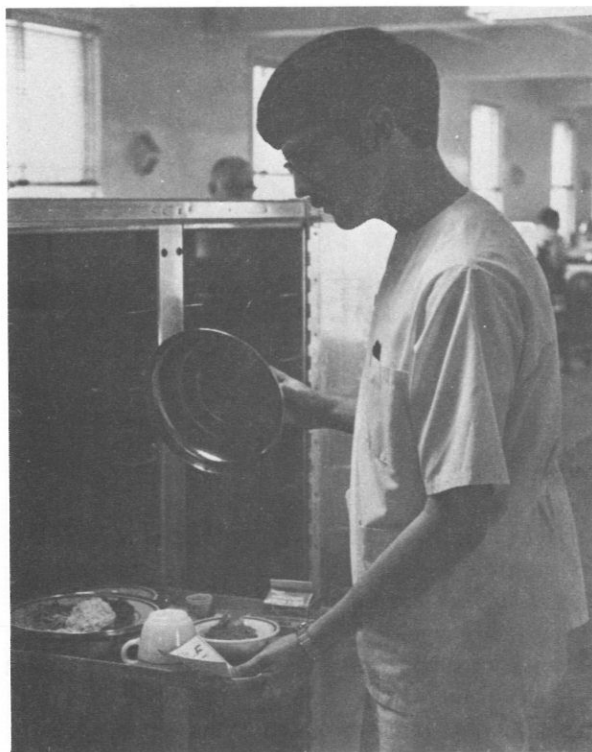


Figure 5.—HN Dwaine Phifer verifies accuracy of special-diet tray prior to service to patient on the ward.

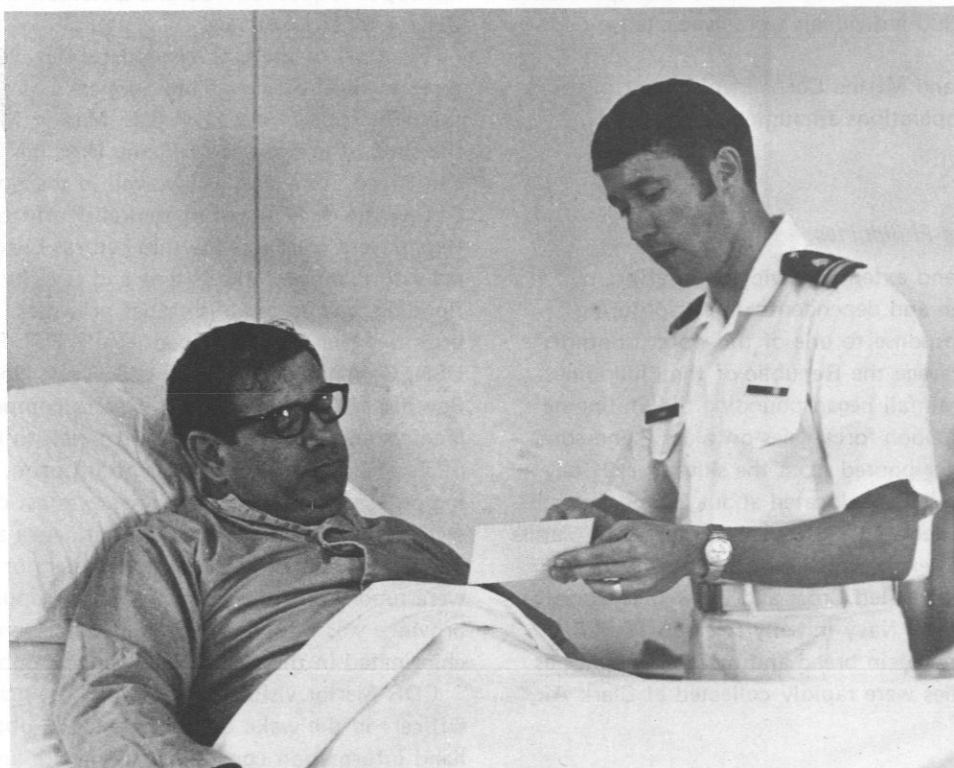


Figure 6.—LTJG Steven R. Lamar, Hospital Dietitian, uses diet card to familiarize patient with requirements of therapeutic diet.

MEDICAL RELIEF OPERATIONS, 1972

Pennsylvania

In late June 1972, Navy and Marine Corps personnel and resources were committed to disaster areas in Pennsylvania for assisting recovery operations from tropical storm Agnes.

Significant support operations included: employment of 35 Navy and Marine Corps aircraft, flying in excess of 475 hours to rescue or evacuate more than 1790 persons; transporting 468 other passengers; and air-lifting over 221 tons of cargo. In addition, more than 300 tons of food, clothing and other material was moved into the disaster area via surface transportation. An estimated 380 individuals were evacuated by surface means.

Total Navy and Marine Corps involvement in the disaster relief operations amounted to some 73 commands.

Republic of the Philippines

A dramatic and extensive civic action effort by U.S. Servicemen and dependents unfolded during July 1972 in response to one of the worst flood disasters ever to ravage the Republic of the Philippines.

The record rainfall began pounding the Philippine Islands with typhoon-force gales on 5 July, and some five feet of water poured from the skies in a 21-day period. Clark Air Base, located about 30 miles north of Manila, was declared by the U.S. Embassy in Manila to be the relief center which worked in cooperation with the Philippine Red Cross and other local social organizations. The Navy initially released 15,000 pounds of high-protein bread and medical supplies as food and supplies were rapidly collected at Clark Air

Base. Together with U.S. Air Force Helicopters at Clark, Marine helicopters from USS *Tripoli* (deployed from her station off Vietnam) delivered men and supplies to the stricken area. In a joint-military effort, hundreds of victims were inoculated, people stranded by the high water were pulled to safety and the homeless were taken to relocation centers.

Seventh Fleet amphibious ships which took part in the operations included the helicopter carriers USS *Tripoli* and USS *New Orleans* and the landing ship tank USS *Cayuga*. The Ninth Marine Amphibious Brigade sent its 33rd Marine Amphibious Unit, Marine Medium Helicopter Squadron 165 and Battalion Landing Team 2/4 for relief assistance.

The staff of the U.S. Naval Hospital, Subic Bay; three medical officers from Surgical Team Ten aboard the USS *Tripoli*; and CDR R.L. Marlbor, MC, USN, from the staff of Preventive Medicine Unit (PMU) No. 5 in San Diego, were deeply involved in the operation. During the early stages of the relief efforts, helicopter flights were conducted within central Luzon, principally to determine the extent and severity of the flooding, and to establish relief priorities. As relief priorities became established, CAPT H.P. Pariser, MC, USN, Commanding Officer, U.S. Naval Hospital, Subic Bay dispatched medical relief teams composed of Medical and Hospital Corps personnel, to the provinces of Zambales and Bataan in central Luzon. In decreasing order of incidence, the illnesses most often treated were gastroenteritis, bronchitis, influenza and pneumonia. No actual outbreaks of cholera or typhoid were reported. In general, the water supply in Bataan province was safe, but the water was essentially non-chlorinated in the city of Olongapo, Zambales province.

CDR Marlbor visited each of the Provincial Health Officers in the wake of this disaster to obtain firsthand information concerning the health and environmental situation in each of their respective towns and barrios.

The photographs appearing with this article were provided by LT Thomas A. McKenzie, MC, USNR, and courtesy of Fleet Air Photographic Laboratory, Cubi Point, Philippines.

Relief operations following Typhoon Rita.



Typical scenes of flooding of Zambales and Bataan Provinces in central Luzon, R. P.



During the flood period approximately 22,000 combined cholera and typhoid immunizations were administered in the 25 barrios visited, and the domestic and government employees of the Naval Station and Naval Air Station in the Subic/Cubi complex. The medical relief teams also visited the Central Luzon Sanitarium (TALA LEPROSARIUM) where approximately 2,000 lepers and attendants were immunized against cholera and typhoid, CAPT Pariser reported.

By the time the rains had stopped and the military effort had been concluded, on 13 Aug, about 300 dead and an estimated 1.2 million refugees remained in the wake of Typhoon Rita. Relief efforts by more than 30 U.S. military commands saved countless lives through thousands of rescues, deliveries of food and medicines, and medical assistance missions.

On 14 Aug in Manila, a number of Navy and Marine Corps units were awarded the Philippine Presidential Unit Citation for their intensive efforts in massive disaster relief operations, to overcome the worst Philippine natural disaster in more than 25 years. Among the officials present at the award ceremony conducted at Manila's Malacanang Palace were RADM John H. Dick, the Commander-in-Chief Pacific's representative in the Philippines and overall coordinator for the flood relief operation; and CAPT W.H. Ellis, Commander, Amphibious Squadron Three. President Ferdinand E. Marcos presented the awards to 30 Americans who represented U.S. Armed Forces units which had rendered outstanding flood disaster relief service. The presentation marked only the second time since World War II that the Philippine Presidential Unit Citation has been awarded to forces of an allied nation. 🍀

Differentiating Psychiatric Consultees

From Effective Aviation Marines

Using Preenlistment Data

By LCDR Douglas R. Elliott, MC, USNR,
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Cherry Point, North Carolina.

The experience of a psychiatrist on active duty in the Navy or Marine Corps can be frustrating because of requests to evaluate a high percentage of men with multiple living difficulties generally warranting a diagnosis of character disorder. Expressing their difficulties through behavior against military regulations and deportment, such men come to the attention of their commanding officer who, in turn, requests that the psychiatrist determine their mental state and suitability for further service. Yet, studies^{2,7} conducted by the Navy Medical Neuropsychiatric Research Unit in San Diego, Calif., reveal that the success in predicting suitability on the basis of the psychiatric interview is not as great as the success achieved by using an actuarial approach, employing preenlistment data. Other studies^{3,5,9} suggest that the psychiatrist's expertise

has been oversold when he is asked to evaluate men for various administrative reasons—a task which burdens his schedule while yielding little more than, either compliance with regulations, or somewhat magical reassurance to the line officer, who must administratively handle the case. Thus, the psychiatrist may spend a significant portion of his time in such evaluations, trying to predict the future, without furthering his own knowledge and without providing much benefit to the serviceman, or to the service.

Furthermore, character disorders are considered to have existed prior to enlistment and, as such, are sufficient in themselves to warrant discharge when a man has demonstrated his inability to adjust to the job in his unit. The value of employing a highly trained specialist to screen for these disorders is highly questionable. The purpose of this study was to explore whether the available information already contained in the Service Record Book, or acquired in brief interview of psychiatric consultees, would sufficiently differentiate them from those not requiring referrals, in order that a consistently reliable recommendation could be made to the line without detracting from the time devoted to treatment, for which psychiatrists have been uniquely scheduled and trained. If available

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The above material was presented by the author at the annual Navy Neuropsychiatric Seminar conducted on 29 April 1972, in conjunction with the annual convention of the American Psychiatric Association.

The opinions or assertions contained in the above article are those of the author and are not to be construed as official or reflecting the views of the Department of the Navy or the naval service at large.

information cannot be readily utilized by the psychiatrist, is there some other way to decrease the total number of such men in the service?

Study Design

All first-term enlistees referred for the first time to the Neuropsychiatric Service between 1 July 1970 and 30 June 1971 were included in the study. Of these, 228 were referred on formal written command request, a channel strongly recommended so that adequate information would be supplied to the interviewer and the command would be assured of a full typewritten report with which to facilitate administrative actions. The remaining 22 consultees were seen on an acute emergency basis.

Data collected from the Service Record Book, and from a few questions included the following: Armed Forces Qualification Test score, obligated service time, service time completed at the time of consultation, school expulsions or suspensions, family stability at the point of enlistment, entries on disciplinary record (page 12 for Marines), proficiency and conduct marks and certain area aptitude scores, including verbal (V), arithmetic reasoning (AR), pattern analysis (PA), classification inventory (CI), general information test (GIT) and estimated GCT (the mean average of the first three aptitude scores). Some of these data were then put into the recruiter formula developed by Plag and Goffman,⁶ to give an odds-for-effectiveness score for each individual. The variables used in this formula include the Armed Forces Qualification Test score, highest grade completed in school, number of suspensions or expulsions from school, the number of years of obligated service and the status of the parental relationship at entry into the service. Effectiveness is defined here as the ability to adequately function on the job, in order to be able to complete the obligated enlistment with a recommendation for reenlistment.

In order to establish a control group, first-term aviation enlistees that were functioning well in their units had to be found. A Marine Air Wing breaks down administratively into Air Groups which, in turn, are usually made up of four squadrons. A control group of 250 first-term enlistees was formed using individuals selected at random from all four squadrons of a large Air Group. These men had all completed initial, intermediate, and on-job training, and had been assigned some final aviation MOS.* Seven of these men were excluded from the study without appreciable

change in scores to make the two groups mutually exclusive. For interest, this control group was also compared with all first-term enlistees (200 men) in one particular full Air Group squadron that was generally reputed to be highly integrated and most effective in its performance. A comparison of mean preenlistment scores achieved by men in this outstanding squadron, and in the control group proved insignificant, so these single squadron scores will not be further considered here.

Analysis of the scores was carried out by obtaining mean averages on scores of each variable, for the consultee and control groups. A t-test, comparing each mean score between the groups was then run.

A formal psychiatric diagnosis was determined after a review of the individual Service Record Book, Health Record, a seven-page questionnaire about personal background, family and development, and a 45-minute interview conducted by the author.

Results

The average preenlistment scores for the neuropsychiatric consultee and control groups are listed in Table I. Also included are the odds-for-effectiveness scores and four additional characteristics of these groups. Additional characteristics include months in service, disciplinary record entries, proficiency and conduct marks. Such data are not available on entry into the service, but they do indicate statistically significant differences between the psychiatric consultee and his more effective Marine counterpart, in this study. The disciplinary record entries are most striking; in the control group only three out of ten men had any entry on their disciplinary record, where the psychiatric consultees averaged more than two entries per man.

The recruiter formula, computing odds-for-effectiveness was the most statistically significant indicator available at the time of enlistment; the scores for the groups as a whole are found in Table I. A breakdown of the odds-for-effectiveness scores by psychiatric diagnosis is found in Table II. Also included is the Armed Forces Qualification Test score, traditionally used as a preenlistment screening indicator. The mean odds-for-effectiveness scores of the consultee groups with the primary diagnosis of character disorder, schizophrenia, low IQ, and drug abuse were all statistically significantly different than the controls. Those consultees with the diagnosis of normal mental status examination, psychoneurosis, or adjustment reaction were not significantly different. That the preenlistment Armed Forces Qualification Test scores of this NP group (except for low IQ), are above the standard norm of the Marine Corps

*MOS = military occupational specialty

Table I
Preenlistment Scores and Group Characteristics

| | NP | Control | t* |
|--|-------|---------|---------|
| 1. Odds for effectiveness score (%) | 75.7 | 88.8 | -10.119 |
| 2. AFQT (%) | 59.6 | 73 | - 8.480 |
| 3. School expulsions/suspensions | 0.45 | 0.38 | NS |
| 4. Highest grade completed | 10.8 | 11.8 | - 9.140 |
| 5. Area aptitude scores** | | | |
| (a) V (verbal) | 111.6 | 115.5 | - 2.925 |
| (b) AR (arithmetic reasoning) | 104.0 | 112.0 | - 5.397 |
| (c) PA (pattern analysis) | 108.6 | 116.6 | - 5.674 |
| (d) CI (classification inventory) | 97.7 | 102.2 | NS |
| (e) GIT (general information test) | 104.0 | 109.8 | - 4.199 |
| (f) GCT (mean average first three aptitude scores) | 107.8 | 114.3 | - 5.797 |
| 6. Additional characteristics | | | |
| (a) Months in service | 23.9 | 28.1 | - 4.236 |
| (b) Disciplinary record entries | 2.4 | 0.29 | 14.220 |
| (c) Pro marks | 4.1 | 4.4 | - 9.891 |
| (d) Conduct marks | 3.9 | 4.4 | -12.008 |

* Significant at P = .01 (2.576) except for NS (not significant)

AFQT = Armed Forces Qualification Test

**Mean of 100 for all Marines

as a whole, suggests that this group requires screening different than that accorded to recruits generally, if these men are to be identified. Plag et al., also came to the statistical finding that "airmen possess higher cognitive abilities."⁸ While this may be essential to adequate functioning in aviation technology, it is not the differentiating factor for ineffectiveness. The latter would have to be established through screening devices other than a test of intelligence.

Another way of looking at the NP group is to compare the frequency distributions of the odds-for-effectiveness scores found in Table III. This comparison suggests that when a man is given less than a 50-50 chance of completing his enlistment at the time of entry in the service, he may well end up in that group requiring psychiatric consultation. At the other end of the scale, in the control group, 156 (62%) were given better than nine chances in ten of completing their

Table II
Odds-for-Effectiveness and
AFQT Scores by Psychiatric Diagnosis

| Diagnosis | | No. | Mean OFE Score (%) | Mean AFQT Score (%) |
|----------------------|----------------------|-----|-----------------------|------------------------|
| Controls | | 250 | 88.8 | 72.9 |
| Personality Disorder | | 159 | 74.3* | 60.1* |
| | Passive Aggressive | 85 | 76.6* | 60.6* |
| | Antisocial | 23 | 70.4 | |
| | Emotionally Unstable | 18 | 66.2 | |
| | Hysterical | 11 | 76.5 | |
| | Immature | 10 | 67.0 | |
| | Paranoid | 4 | 82.5 | |
| | Obsessive | 3 | 96.5 | |
| | Schizoid | 5 | 77.0 | |
| Schizophrenia | | 12 | 72.4* | 52.6* |
| Low IQ | | 9 | 52.0* | 32.1* |
| Drug Abuse | | 10 | 69.5* | 52.3* |
| Adjustment Reaction | | 31 | 84.7 | 68.8 |
| Normal and Other | | 29 | 84.9 | 60.8 |
| | Anxiety Neurosis | | 85.7 | |
| | Depressive Neurosis | | 94.0 | |

*P < .01 when compared to controls

OFE = Odds-for-effectiveness

AFQT = Armed Forces Qualification Test

time, whereas only 64 (26%) men in the psychiatric group were given the same odds, no matter what the reason for psychiatric referral.

With lower odds-for-effectiveness scores, one might expect more discharges which, in fact, is the case. During the study year, a total of 364 out of approximately 7,500 men were administratively discharged from the Air Wing for reasons other than hardship, but approximately 100 received unsuitability discharges related to character and behavior disorders. Thus it becomes evident that psychiatric disability is not by any means the only cause of manpower loss. However, in this study of the 250 consultees referred for evaluation, 126 were recommended for discharge and of this 126, 82 (65%) men were discharged prematurely. Of those not recommended for discharge, an additional 34 men were discharged by their unit either prematurely, or without recommendation for reenlistment. In other words, 116 (47%) of those men sent for psychiatric screening were considered ineffective and were largely discharged prematurely. Such a loss of fully trained men is not only costly to the service but frustrating to the psychiatrist, whose time is not being used primarily to aid the men who do contribute to the service effort. Incidentally, one can also see by the months-in-service figure (See Table I) that the Marine Corps is not getting the last two years of useful service that are expected when the aviation training is initially offered.

Plag and Goffman showed⁶ "that AFQT score is not the best measure of an individual's potential for effective military performance and that a composite of variables would constitute a more valid measure for establishing standards for military acceptability and for evaluating the quality of manpower among the military services." Their formula utilizing the composite of variables, although developed for naval recruits, appears to have more general application; in this study it proved the best tool currently available to identify the ineffective Marine aviation enlistee. But it does not sufficiently separate this individual from his effective counterpart. However, the study does suggest that a similar formula for aviation enlistees ought to be developed. More careful screening at the recruiter level, using the currently available tests plus a more specific formula might not only save the government considerable expense (upwards of \$50,000 per man) but, where successful, would also unburden the medical and legal facilities. Psychiatrists would then be made more available to treat those who have a better chance to serve productively in the Navy and Marine Corps.

A sidelight of the study involved one of the area aptitude tests. The Classification Inventory test used in the Marine Corps purports to measure "interest,

Table III
Frequencies of Odds-for-Effectiveness Score

| Score | NP | Control |
|-------|----|---------|
| 100 | 15 | 60 |
| 96-99 | 16 | 40 |
| 93-95 | 20 | 42 |
| 90-92 | 13 | 14 |
| 87-89 | 9 | 10 |
| 84-86 | 12 | 14 |
| 81-83 | 17 | 9 |
| 78-80 | 13 | 20 |
| 75-77 | 12 | 11 |
| 72-74 | 21 | 3 |
| 69-71 | 14 | 6 |
| 66-68 | 8 | 1 |
| 63-65 | 15 | 8 |
| 60-62 | 13 | 3 |
| 57-59 | 18 | 2 |
| 54-56 | 4 | 4 |
| 51-53 | 7 | 3 |
| 48-50 | 1 | |
| 45-47 | 5 | |
| 42-44 | 3 | |
| 39-41 | 2 | |
| 36-38 | 3 | |
| 33-35 | 1 | |

personality and feeling of social responsibility—behavior basic to good personal adjustment and to good citizenship.”¹ Yet, the scores for the psychiatric consultees as a whole were not significantly lower statistically when compared to the control group. Evidently the test does not measure what it purports to measure, at least in this study. Clinically it appeared to be useful only in the extreme ranges. Reevaluation and modification of this test would make it more valuable to the psychiatrist, line officer, and recruiter (if made available).

In conclusion, I refer to the previous work of Plag, Arthur and Goffman who have worked so extensively with this actuarial approach. They found that “. . . of the 600 first-term enlistees admitted to the sick list as psychiatric patients only 60 (10.0%) could be considered to have rendered effective military service.”⁴ While the results of the present study are more modest, the 47% premature-discharge rate is still high. The impression is that psychiatrists are asked to work with a biased population which might better be eliminated at the time of recruitment, through an actuarial approach.

Summary

A comparison of preenlistment scores of 250 first-term Marine aviation enlistees revealed statistical differences from scores achieved by a control group of effectively functioning aviation Marines. Forty-seven percent of psychiatric consultees rendered ineffective service and were discharged. This study suggests that more thorough evaluation, using an odds-for-effectiveness formula specifically designed for aviation personnel would allow the psychiatrist to spend a greater proportion of time in treating those men who are capable of rendering effective military service.

Acknowledgment

The generous assistance of Drs. John Plag and Jerry Goffman, and Mrs. Wanda Rice for her untiring research and secretarial support, is gratefully acknowledged.

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USE AND ISSUE OF FG-58 FLYING GOGGLES

It has come to the attention of Code 5, BUMED that there has been a marked increase in the number of requests for the FG-58 flying goggles in each succeeding year over the last three years. In the past year alone, the requisitions for the tinted flying goggles have increased 14.3%, while the requests for the clear aviation prescription goggles have risen 77.08%. Dispensing activities are reminded of their responsibility to assure that only aircrewmembers qualified under BUMED Instruction 6810.49 of 22 July 1969, receive these types of eyewear.—Code 52, BUMED.

A Study of Osteomyelitis Following Tooth Extraction

By **CAPT Elgene G. Mainous, DC, USN,**
Chief of Dental Service, Naval Hospital,
Long Beach, California.

**(Photos by HM2 James Spencer, Medical
Photographer.)**

CHARACTERISTIC CLINICAL FEATURES

Acute osteomyelitis of the jaw most frequently results from odontogenic infection as a post-extraction complication and may follow a single tooth removal (Figure 1). During the acute phase, the osteomyelitis may involve the cortical bone or the bone marrow, remaining localized (Figure 2) or extending throughout the entire jaw (Figure 3). It spreads rapidly through the marrow spaces and may even spread via the mandibular canal (Figure 4) to involve the condyle.

The blood supply to the mandible is provided by the single inferior alveolar artery and the surrounding periosteum. The maxilla is much more vascular than the mandible, receiving its blood supply from multiple vessels. This anatomic difference enhances mandibular

susceptibility to osteomyelitis. This acute infection in the mandible causes compression and thrombosis of the single mandibular neurovascular bundle. The subperiosteal swelling strips the periosteum from the bone, rendering the affected area virtually avascular. This results in infected cavities within the marrow spaces and bone sequestration (Figures 5 and 6). The compression of the mandibular nerve results in anesthesia of the affected side.

Sinuses form in the soft tissues overlying the affected bone and may open and close periodically depending on the acuteness of the inflammation (Figure 7).

Staphylococcus aureus and *Staphylococcus albus* are the most common bacteria associated with suppurative osteomyelitis. *Streptococcus hemolyticus*, *Pseudomonas*, *Proteus*, *Escherichia coli* and *Enterobacter* have also been cultured from these sites of osteomyelitis. In the later stages of the disease, mixed bacteria were found in cultures routinely taken from these cases.

Clinical findings presented by all of the patients with acute osteomyelitis were: severe pain, mobility of teeth in the adjacent area, swelling of the soft tissues overlying the affected bone and sinus formation in the

The opinions or assertions contained herein are those of the author and are not to be construed as official or as necessarily reflecting the views of the Navy Department or the naval service at large.

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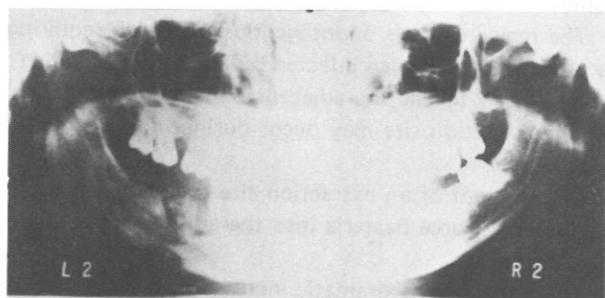


Figure 1. Osteomyelitis following extraction of mandibular left bicuspid.

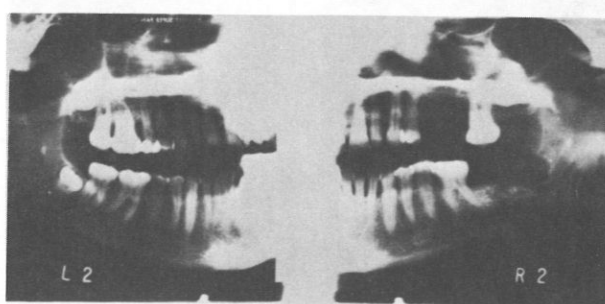


Figure 2. Osteomyelitis localized to third molar extraction site.

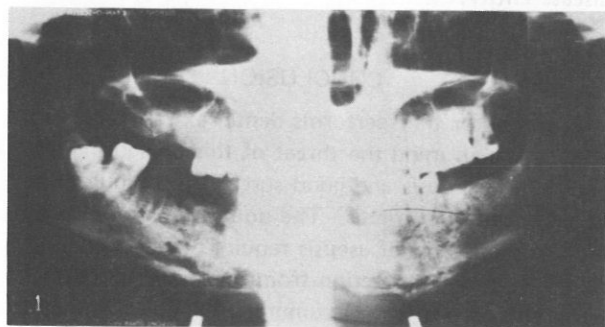


Figure 3. Osteomyelitis involving entire right and left mandibular body.



Figure 4. Extension of osteomyelitis through mandibular canal to condyle.

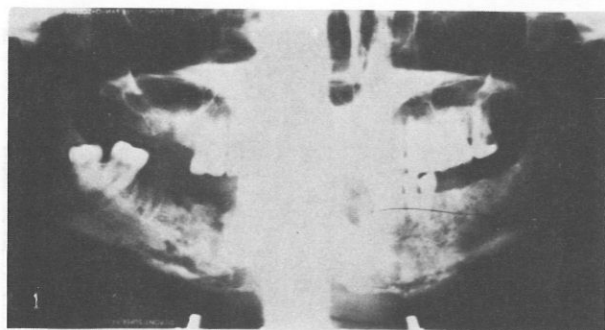


Figure 5. Infected bone cavities within marrow spaces of mandible.



Figure 6. Avascular bone sequestrum exposed extra-orally.



Figure 7. Submandibular sinus tract.

soft tissue, with lymphadenopathy. Severe mandibular trismus and anesthesia of the lower lip, on the affected side, were common findings. Elevated white blood cell count and sedimentation rate were always present. The degree of elevated temperature depended upon the acuteness of the disease.

DISCUSSION

Acute osteomyelitis of the mandible is one of the major challenges that confront the dental profession. The condition often fails to respond to antibiotic

therapy, surgical incision and drainage, and sequestrectomy.

The major cause is odontogenous. A tooth requiring extraction may have an infected pulp and the offending bacteria may invade the adjacent bone. Contamination of the extraction site may occur during the extraction procedure.

Curettement of an extraction site that presents local osteitis may force bacteria into the adjacent bone marrow.

There has been a dramatic increase in the number of cases of acute osteomyelitis referred to the Long Beach Naval Hospital for treatment over the past two years. Contamination of extraction sites by beards and mustaches, now fashionable in our society, may be a contributory factor associated with the increase in this disease entity.

CONCLUSION

Each doctor that performs dental extractions must always bear in mind the threat of this disfiguring disease. Strict asepsis and good surgical technique must be practiced at all times. The doctor must decide for himself the extent of asepsis required to prevent this fulminating bone infection from occurring. Surgical scrub and prep of the circumoral area, and elimination of facial hair from the surgical field would seem to represent prudent, if not mandatory precautions. 🌿

LCDR BIENKOWSKI EARNS DEGREE

LCDR Faustyn J. Bienkowski, MSC, USN was presented his Master's Degree in Public Administration during ceremonies conducted by CAPT Newton W. Allebach, Officer in Charge, Naval Aerospace Medical Research Laboratory, Pensacola, Fla. Head of the Logistics Department at the Laboratory, Lcdr Bienkowski earned his degree from the University of West Florida by attending night school in his spare time. He is a 1963 graduate of Furman University, Greenville, S.C.—PAO, Nav Aerospace Med Center, Pensacola, Fla.



GOOD FOR YOU.—CAPT Allebach (left) congratulates Lcdr Bienkowski (right) on his recent academic achievement. 🌿

THE GASTROENTEROLOGISTS' CORNER

CHRONIC HEPATITIS

(A Rose By Any Other Name)

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and

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All too often in the practice of clinical medicine great difficulty is experienced in the understanding of disease, a situation created primarily by confusion over definitions. This is particularly true in the instance of chronic or persisting hepatitis, and the various synonyms applied to this disease over the years attest to this fact. The terminology used includes chronic active hepatitis, chronic aggressive hepatitis, "lupoid" hepatitis, chronic persisting hepatitis and prolonged hepatitis. During recent months, much attention has been given in the medical literature to chronic progressive liver disease that is not related to excessive alcohol intake. The purpose of this discussion is to clarify the present confusion surrounding this entity, and, to formulate a working classification of unresolved hepatitis and a rational approach to management.

The opinions or assertions contained herein are those of the authors and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

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HISTORICAL ASPECTS

One of the earliest reports of progressive liver disease in the nonalcoholic was published in 1956 by Bearn, Kunkel, and Slater,¹ in which case histories of 26 patients were detailed. It is of considerable interest to note that the initial series contained a predominance of females (23 out of 26) who developed hepatic cirrhosis without apparent cause; certain systemic symptoms were common, including intermittent febrile episodes, joint symptoms, and menstrual irregularities. The disease was also found to be associated with increased serum gamma globulin. This clinical entity was initially thought to be more specific for young females and the common descriptive term of "Kunkel girls" was applied.

This report was shortly followed by another from Bartholomew et al.,² describing seven females who presented similar cirrhosis of unclear etiology and positive tests for lupus erythematosus (LE). Again, this appeared to represent a disease of females, although,

the age range varied widely from nine through 53 years. A variety of systemic symptoms, including fever, rash, and arthralgias were again described. The hypergammaglobulinemia was again noted. As a result of this report, the descriptive term, "lupoid" hepatitis became popular in describing patients with progressive liver disease and positive LE cell preparations. However, it was recognized that this condition did not appear to constitute a variant of disseminated lupus erythematosus.

An intensive review of their experience at the Massachusetts General Hospital by Wilcox and Isselbacher³ was published in 1961. The study included 33 cases of chronic liver disease without apparent cause, in young people. Although two-thirds of the patients were females, it was clear that the condition was not exclusively sex-related. Again the patients were shown to have hepatic cirrhosis with associated increased serum globulins, a variety of systemic symptomatology, and often, positive LE cell tests. These authors concluded that it was not reasonable to separate these patients into a specific group on the basis of LE cell phenomenon, since the latter was not consistently positive, and since those with a positive test showed no other distinguishing features. It was concluded that the disease represented postnecrotic cirrhosis in young people without apparent cause.

A more intensive study of so-called "lupoid" hepatitis was published by MacLachlan, et al., in 1965.⁴ In their review of 20 cases with progressive liver disease and various systemic symptoms, these authors again demonstrated the high incidence of elevated serum

gamma globulins. Most of the patients revealed positive tests for LE cells, but also showed many other abnormalities of serum globulin tests. It was concluded that this entity was quite different from disseminated lupus erythematosus and probably represented an autoimmune disease causing postnecrotic cirrhosis of the liver.

Quite recently the term "lupoid" hepatitis has hopefully been laid to rest for the final time. In a review of the experience at the Mayo Clinic, Soloway, et al.,⁵ have shown that the incidence of positive LE cell preparations, and also of other abnormalities of immune response are quite common in patients with chronic active hepatitis. These authors concluded that there is no basis for using this term to imply a specific form of chronic liver disease, but rather that the LE cell phenomenon only represents another factor in the broad scope of manifestations of chronic hepatitis.

DEFINITIONS

It seems important to develop a working classification of the forms of chronic or unresolved hepatitis so that we can better construct a more rational approach to these problems. One of the clearest attempts at definition is that originally proposed by the *European Association for the Study of Liver Disease*, and more recently reviewed by Popper and Schaffner,⁶ as summarized in Table 1. The basis for this classification is derived from the location and extent of the hepatocellular necrosis and the accompanying inflammatory reaction. In all of these forms of hepatitis the characteristic inflammatory infiltrate is mononuclear, with occasional plasma cells.

TABLE 1.—HISTOLOGIC FEATURES OF INFLAMMATORY LIVER DISEASE

| ENTITY | INFLAMMATION | NECROSIS | FIBROSIS | SYNONYMS |
|------------------------------|--|------------|----------|--|
| Acute Hepatitis | Widespread, discontinuous | Spotty | None | |
| Chronic Lobular Hepatitis | Widespread, discontinuous | Spotty | None | |
| Chronic Portal Hepatitis | Limited to portal tracts | Absent | None | Chronic persistent hepatitis, Prolonged hepatitis, Triaditis |
| Chronic Periportal Hepatitis | Primarily in portal and periportal areas | Periportal | ± | Chronic active hepatitis, Chronic aggressive hepatitis, "Lupoid" hepatitis |

Acute Viral Hepatitis.

In acute viral hepatitis the hepatocellular necrosis and inflammation are widespread but discontinuous ("spotty") throughout the parenchyma. In addition, there is frequently an increased number of inflammatory cells within the portal tracts. [See Figure 1-(1).]

When does acute hepatitis become chronic? Most hepatologists would agree that evidence of continued liver involvement after six months is certainly chronic, and many would suggest that a continuing process for greater than three months should raise the suspicion of a chronic process.

Chronic Lobular Hepatitis.

The second entity in our classification is chronic lobular hepatitis. The histologic picture is identical to that of acute hepatitis. The characteristic feature of this entity, then, is the persistence of the picture for greater than three months. Such a histologic finding is felt to occur fairly often in the course of uncomplicated hepatitis, and should imply no serious prognosis.

Chronic Portal Hepatitis.

An entity which has caused more problems is chronic portal hepatitis, shown schematically in Figure 1-(2) to

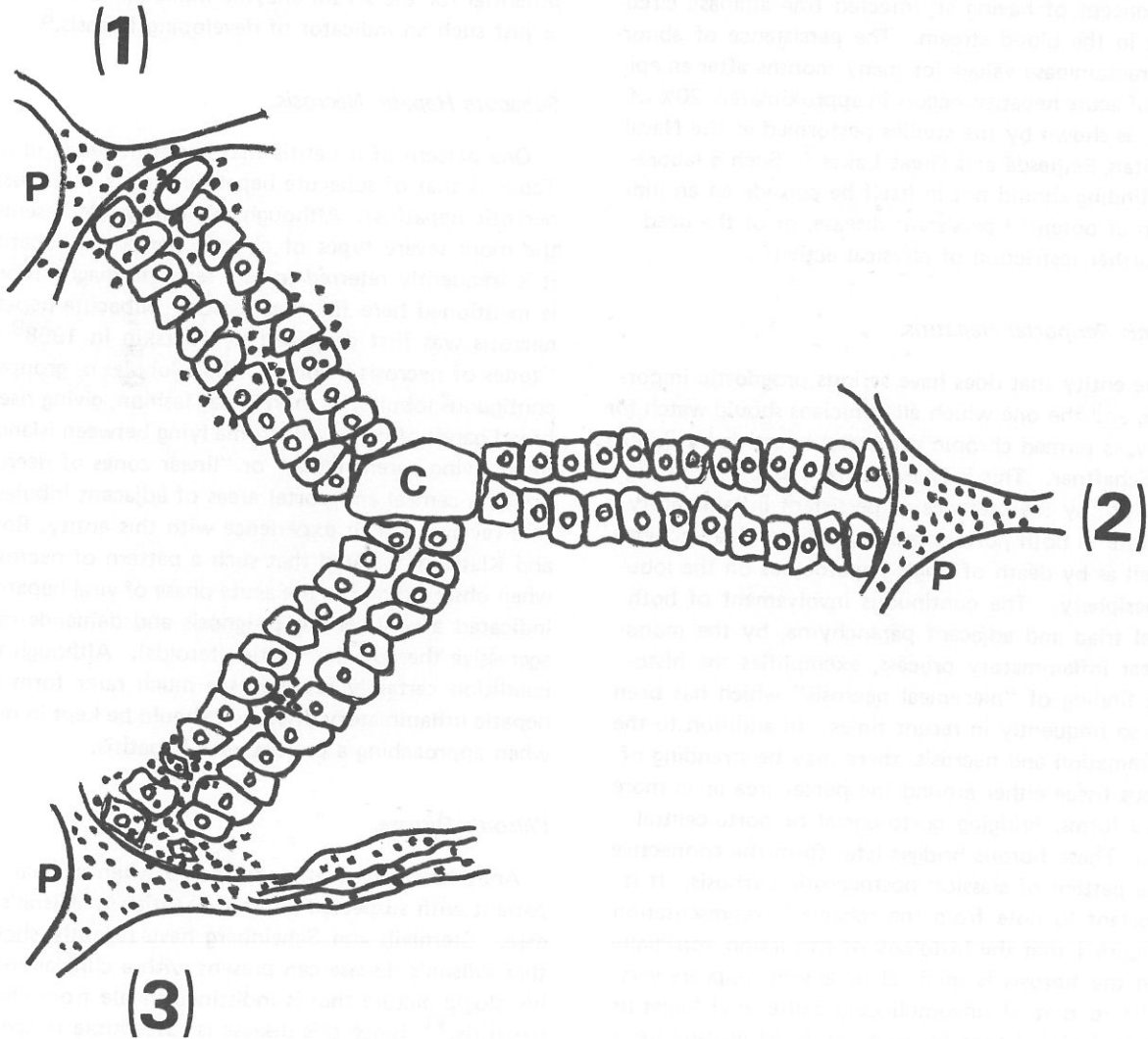


Figure 1.—Schematic representation of hepatic lobule showing portal triads (P) and central vein (C) in acute hepatitis (1), chronic portal hepatitis (2), and chronic aggressive hepatitis (3). Details in text.

represent a persistent inflammation located primarily in the portal triad area. There should be little or no evidence of hepatocellular necrosis or inflammation within the lobule, or surrounding the portal tracts. This lesion has been given many other synonyms including "chronic persistent hepatitis," "triaditis," and "prolonged hepatitis." It is important to recognize that such a finding, like that of chronic lobular hepatitis, is most likely a common accompaniment of the resolution process of typical acute hepatitis and does not indicate a more severe prognosis.

Either the chronic lobular or chronic portal hepatitis may be associated with persistent, often variable, abnormalities of the serum transaminases, but most often the other liver function tests appear quite normal. This has led to the unfortunate use of the term "transaminitis," which certainly has little meaning unless one accepts the concept of having an infected transaminase circulating in the blood stream. The persistence of abnormal transaminase values for many months after an episode of acute hepatitis occurs in approximately 20% of cases, as shown by the studies performed at the Naval Hospitals Bethesda and Great Lakes.⁷ Such a laboratory finding should not in itself be considered an indication of potential persistent disease, or of the need for further restriction of physical activity.

Chronic Periportal Hepatitis.

The entity that does have serious prognostic importance, and the one which all clinicians should watch for warily, is termed chronic periportal hepatitis by Popper and Schaffner. This is characterized, as shown in Figure 1-(3), by the presence of persistent inflammatory infiltrate in both portal areas and adjacent parenchyma, as well as by death of single hepatocytes on the lobular periphery. The continuous involvement of both portal triad and adjacent parenchyma, by the mononuclear inflammatory process, exemplifies the histologic finding of "piecemeal necrosis" which has been used so frequently in recent times. In addition to the inflammation and necrosis, there may be stranding of fibrous tissue either around the portal area or in more severe forms, bridging porto-portal or porto-central areas. These fibrous bridges later form the connective tissue pattern of classical postnecrotic cirrhosis. It is important to note from the schematic representation in Figure 1 that the histology of this lesion, especially when the fibrosis is minimal or absent, appears very similar to that of uncomplicated acute viral hepatitis [Figure 1-(1)], hence the importance of waiting for a sufficient period of time before considering the diagnosis of chronic periportal hepatitis. If, however, this

histologic lesion is found, certainly after six months (and often, perhaps after three months) of continuing disease, then it seems reasonable to think in terms of a true chronic disease process.

Chronic periportal hepatitis has many synonyms as listed in Table 1, the most common of which is that of chronic aggressive hepatitis. In addition to the histologic findings described above, patients with true chronic aggressive hepatitis frequently have other abnormalities in liver function studies, particularly, marked elevations in the serum gamma globulins. There are recent studies which also indicate that a persistent Australia antigenemia may be indicative of this disease process. Although there is no accepted laboratory test to discern the development of fibrous strands in the liver, recent studies in the Clinical Investigation Center at Philadelphia Naval Hospital indicate a very real potential for the serum enzyme monoamine oxidase, as just such an indicator of developing fibrosis.⁸

Subacute Hepatic Necrosis.

One pattern of hepatitis that is not included in our Table, is that of subacute hepatic necrosis (submassive necrotic hepatitis). Although this entity may resemble the more severe types of chronic periportal hepatitis, it is frequently referred to as a separate diagnosis and is mentioned here for that reason. Subacute hepatic necrosis was first described by Klatzkin in 1958⁹ as "zones of necrosis involving whole lobules or groups of contiguous lobules, in an irregular fashion, giving rise to broad bands of collapsed stroma lying between islands of surviving parenchyma," or "linear zones of necrosis bridging central and portal areas of adjacent lobules." In a review of their experience with this entity, Boyer and Klatzkin¹⁰ stated that such a pattern of necrosis, when observed during the acute phase of viral hepatitis, indicated a very serious prognosis and demands more aggressive therapy (i.e. corticosteroids). Although the condition certainly represents a much rarer form of hepatic inflammatory disease, it should be kept in mind when approaching a patient with hepatitis.

Wilson's Disease.

Another entity to be considered when evaluating a patient with suspected chronic hepatitis is Wilson's disease. Sternlieb and Scheinberg have recently shown that Wilson's disease can present with a clinical and histologic picture that is indistinguishable from chronic hepatitis.¹¹ Since this disease is susceptible to specific and effective chemotherapy, it should be suspected in every child or young adult, under 30 years of age, with

idiopathic chronic hepatitis. Kayser-Fleischer rings, low serum ceruloplasmin, and increased urinary excretion of copper are important features of Wilson's disease, serving to distinguish it from other causes of chronic hepatitis.

THERAPY

The patient with the diagnosis of chronic lobular or chronic portal hepatitis should probably be handled no differently than one with uncomplicated acute viral hepatitis. It seems apparent that the importance of bed rest has been overstressed. Most hepatologists would agree that such patients should be allowed to ambulate freely, encouraged to return to full activity, and even full duty, as soon as possible. Adequate nutrition is, of course, most important and should consist of a well-balanced normal diet of foods familiar to the patient. Vitamin supplements may be added, but there is no scientific proof that they are beneficial. It also seems well established that there is no place for more drastic therapy, particularly corticosteroids or immunosuppressive agents, in uncomplicated hepatitis.¹²

But what about the patient with chronic periportal hepatitis? Over the last few years several well-controlled studies have shown increased survival for those patients who received corticosteroids, either alone, or combined with azathioprine.^{13,14} It should be noted, however, that the patients selected for these studies were generally seriously ill with markedly abnormal transaminase levels, gamma-globulin values, anemia, ascites, and other signs and symptoms of severe liver damage. Their liver biopsies, in addition to the histologic features of chronic periportal hepatitis, frequently showed evidence of fibrosis and/or subacute hepatic necrosis.

Unfortunately, there have been no controlled studies of patients with the histologic picture of chronic periportal hepatitis; only patients with mild abnormalities of their liver function tests, and minimal symptoms have been so studied. These patients probably warrant the use of corticosteroid therapy but every effort must be made to keep the doses to a minimum, and frequent attempts to withdraw the drug should be made. Serial liver biopsies should be obtained every few months to establish a more definite prognosis.

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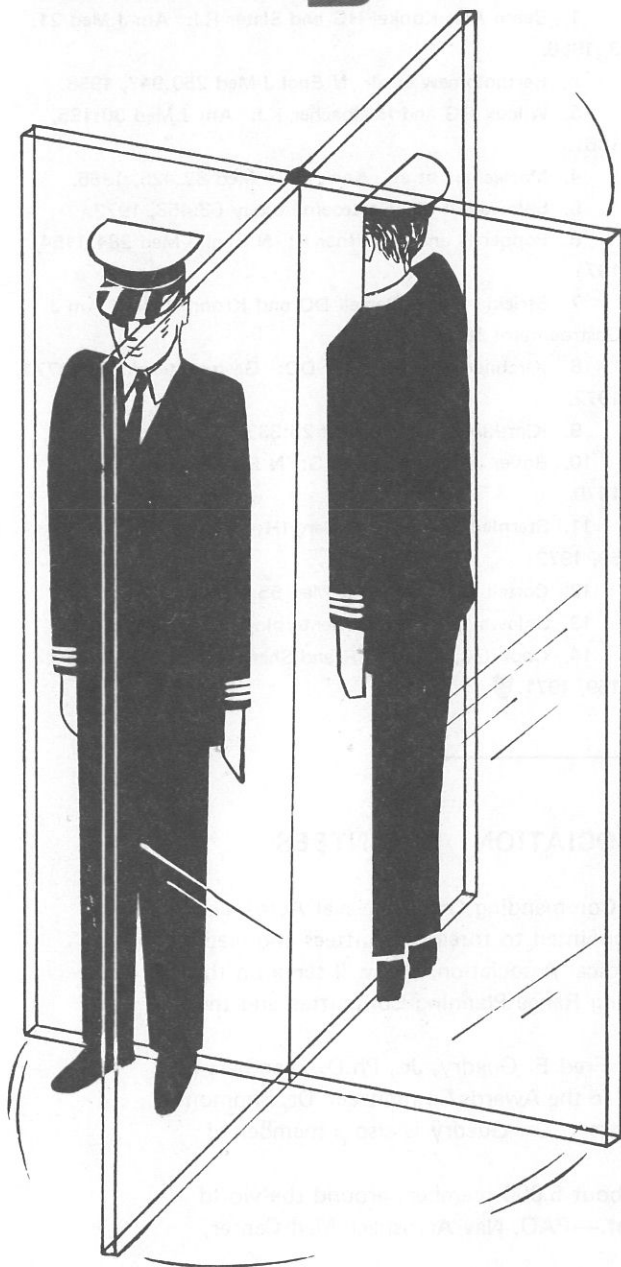
AEROSPACE MEDICAL ASSOCIATION APPOINTEES

CAPT Robert C. McDonough, MC, USN, Commanding Officer, Naval Aerospace Medical Institute, Pensacola, Fla., has been appointed to three committees and elected to the executive council of the Aerospace Medical Association. He will serve on the Constitution and By-Laws Committee, the Long Range Planning Committee and the Membership Committee.

CDR William W. Simmons, MC, USN and Fred E. Guedry, Jr., Ph.D., members of CAPT McDonough's staff have been appointed to the Awards Committee. Dr. Simmons is also on the Education and Training Committee. Dr. Guedry is also a member of the Scientific Program Committee.

The Aerospace Medical Association has about 5,000 members around the world and is devoted to the biologic aspects of flight.—PAO, Nav Aerospace Med Center, Pensacola, Fla. ☛

Coming and Going



VADM D.L. CUSTIS, MC, USN

From: CO, Nav Hosp Bethesda, NNMCMC, Bethesda, Md.

To: Chief, Bureau of Medicine and Surgery
(The Surgeon General of the Navy) (Feb)

VADM G.M. DAVIS, MC, USN

From: Chief, Bureau of Medicine and Surgery
(The Surgeon General of the Navy)

To: Retirement (Feb)

RADM J.W. ALBRITAIN, MC, USN

From: Deputy Chief, Bureau of Medicine and Surgery and Assistant Chief for Headquarters Operations

To: Retirement (Mar)

RADM F.H. CARY, MC, USNR

From: Attending Physician, Office at the U.S. Capitol

To: Attending Physician at the U.S. Capitol (Jan)

RADM H.S. ETTER, MC, USN

From: Assistant Chief for Planning and Logistics

To: Deputy Chief, Bureau of Medicine and Surgery and Assistant Chief for Headquarters Operations (Mar)

RADM W.H. HAGERMAN, JR., DC, USN

From: CO, Nav Grad Dental School, NNMCMC, Bethesda, Md.

To: Inspector General, Dental, BUMED (Mar)

RADM A.R. KAIRE, DC, USN

From: Inspector General, Dental, BUMED

To: CO, Nav Dental Center, San Diego, Calif.
(Feb)

RADM R.J. PEARSON, MC, USN

From: Attending Physician at the U.S. Capitol

To: Retirement (Jan)

RADM E.J. RUPNIK, MC, USN

From: CO, Nav Med Training Institute, NNMCMC, Bethesda, Md.

To: Assistant Chief for Planning and Logistics, BUMED (Feb)

RADM G.D. SELFRIDGE, DC, USN

From: XO, Nav Dental Clinic, Norfolk, Va.

To: CO, Nav Grad Dental School, NNMCMC, Bethesda, Md. (Mar)

RADM M.G. TURNER, DC, USN

From: CO, Nav Dental Center, San Diego, Calif.
To: Retirement (Apr)

CAPT J.W. COX, MC, USN

From: BUMED, Head, Training Branch of Professional Division
To: CO, Nav Med Training Institute, NNMC, Bethesda, Md. (Feb)

CAPT D.E. BROWN, MC, USN

From: BUMED, Head, Neuropsychiatry Branch of Professional Division
To: CO, Nav Hosp Bethesda, NNMC, Bethesda, Md. (Feb)

CAPT S.G. KRAMER, MC, USN

From: XO, Nav Hosp Boston, Chelsea, Mass.
To: CO, Nav Hosp Boston, Chelsea, Mass. (Aug 1972) 🍀

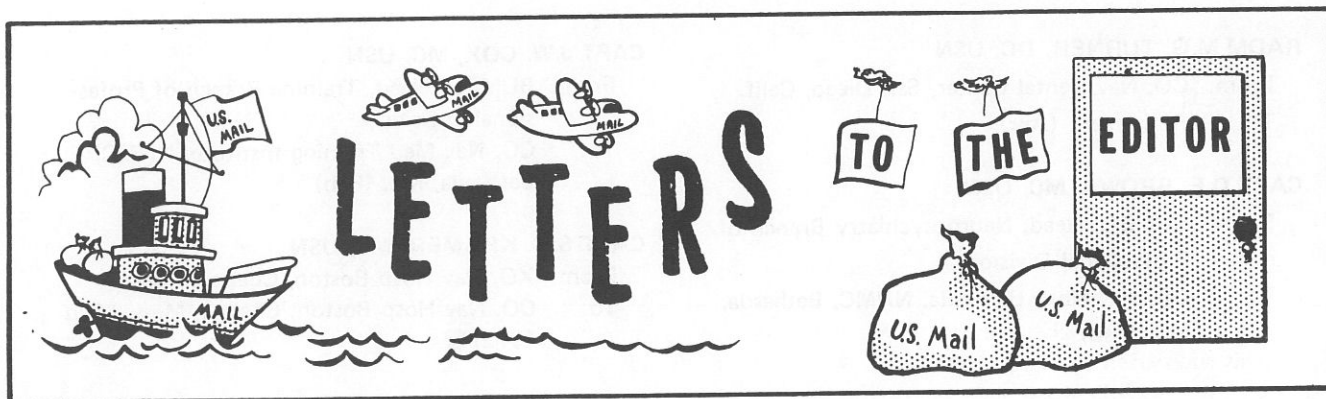
FULL-TIME OBSTETRIC ANESTHESIA

Naval Hospital Portsmouth, Va., has become the second Navy medical facility to introduce full-time obstetric anesthesia coverage. Coverage includes a system for monitoring the fetal EKG during labor, thereby

permitting detection of any EKG abnormality which might portend distress. It also includes continuous epidural anesthesia to provide complete comfort for the patient during labor.



SOLID BEDSIDE REASSURANCE — The system for monitoring the fetal EKG during labor allows for maximum observation of the status of the infant approaching birth. (Photo by HM2 Ronald Monroe).—PAO, Nav Regional Med Center, Portsmouth, Va. 🍀



ALCOHOLISM

To the Editor: In a letter to the editor published in the December 1972 issue of *Navy Medicine*, CDR C.H. Bercier, Jr., correctly pointed out the general view of our society, namely, that although alcoholism is a problem it is (1) hard to define and (2) not nearly as serious a problem as some would have us believe.

My statement that alcoholism is the third leading cause of death was based on the following reasoning:

In examining the Vital Statistics of the United States (1973), it is noted that cirrhosis of the liver is the ninth cause of death and nearly all of it is due to alcoholism. Accidents occupy the fourth position and we have data that indicates that 50% of all motor vehicle deaths are alcohol-related. Significant percentages of other accidents are also alcohol-related (39% is quoted for aviation accidents due to alcohol-related causes).

Cancer occupies the second position on the list and although alcoholism is not a major cause of cancer it is certainly a causative factor in cancer of the mouth, pharynx, larynx, esophagus, liver and pancreas.

Heart disease is placed in the number one position and although alcoholic cardiomyopathy is probably responsible for only a small percentage of these deaths, it is nevertheless a factor. Hypertension is also frequently implicated, a condition which often subsides when sobriety is achieved.

Pneumonia and emphysema occupy fifth and tenth positions, respectively, as causes of death. Alcoholism is a contributing factor in many cases of terminal pneumonia and the synergistic addictions of alcohol and cigarette smoking are implicated in emphysema.

Suicide is eleventh on the list and alcoholism is responsible for about one-third of suicides.

Homicide is twelfth — about half of these incidents are alcohol-related.

Alcoholism is alleged to be the cause of death in 25% of fire deaths, 20% of fatal falls and drownings,

and 15% of deaths attributed to choking on food. Alcoholism is a significant factor attending deaths from narcotism when one considers the alcohol abuse that occurs in drug addicts and the all too frequent deaths resulting from ingestion of sedatives and tranquilizers associated with heavy alcohol intake.

Considering the sum total of all these figures I must conclude that alcoholism plays a very significant part in causing death — much more so than is commonly realized. Unfortunately, records do not bear this out because all too often alcoholism is not mentioned on a death certificate by the physician because of (1) stigmatic implications and (2) because it is not considered an immediate cause of death.

Perhaps I am guilty of overstating the case. Would you buy fourth or fifth place for alcoholism?

CAPT Joseph J. Zuska, MC, USN (Ret.-Active),
Director, Alcoholic Rehabilitation Center,
Naval Regional Medical Center,
Long Beach, California 90801

However our readers may wish to regard his extrapolative license, there can be no doubt that CAPT Zuska's leadership and accomplishment in heading the Long Beach Alcoholic Rehabilitation Clinic (established in 1967) deserves our highest respect. U.S. NAV MED hopes in the near future to publish an article on the subject by CAPT Zuska, or by staff members of other Naval Alcoholic Rehabilitation clinics which have been more recently established.

COMMUNITY HYGIENE

To the Editor: A new look at hygiene is worthwhile. No one wants to be ill. No one wants to needlessly become a patient. Greater emphasis on preventive

medicine is needed in our medical schools and in the practice of medicine throughout the Navy.

Most physicians are interested in reducing the incidence of disease, but have been trained only in its cure and not its prevention. Anyone likes to do that which he can do well and doctors are no exception. They like to cure the sick. Hygiene lacks glamour and lacks the personal patient-physician relationship which the physician finds so rewarding. No one will personally thank the doctor for insisting that he be given a "flu shot." No one will thank the doctor for his suggestion to install a new garbage disposal system. No one will thank the doctor for showing how to exterminate cockroaches. But immunizations, safety, sanitation and environmental control are preventive medicine measures designed to improve public health. Working and living conditions contribute to the stressful milieu in which we all exist. The physician can advance community health by directing more of his attention to illness prevention (hygiene), and by being alert to ways of improving the quality of life in his community. He can reap the satisfaction of having helped thousands of potentially ill patients instead of the few who may have contracted lifelong ailments. Through his concern he will influence his associates to be aware of the need for increased mental and physical hygiene.

Much has been publicized advocating the annual physical examination, and indeed, the early detection of an illness is a big step in its cure; but prevention of accidents in the home and on the job is far more cost-effective. The medical officer should not shirk his medical responsibility to conduct safety and sanitation inspections. He will be performing his duty as a physician in the practice of preventive medicine. He will not be waiting for sick patients to come to him, but will be keeping healthy men on their jobs.

In the Jan 1972 edition of *Postgraduate Medicine*, Dr. Grayson pointed out in the lead article that the public wants magic answers to health problems, but the answers require changes in life styles which may be bitter pills. Little progress has been made to convince the public not to smoke, and to wear seat belts. A recent survey of orthopedic patients discharged from Tripler Army Hospital underscores the danger of motorcycles, yet our serviceman persists in his belief that "It could never happen to me." Perhaps a bit of sugar in the form of physician concern will help the medicine go down more easily.

Continued insistence on implementing sound public health measures will ultimately reap rewards for our nation, our Navy and perhaps even for our medical officers. We cannot legislate health, but an effort is being made toward the practice of good hygiene within the Federal Government community.

By executive order the President of the United States has directed that occupational safety and health programs be established and "... as the Nation's largest employer, the Federal Government has a special obligation to set an example for safe and healthful employment." In response, the DOD and Department of Labor are preparing guidelines and plans for appropriate standards, inspections, and accident reporting.

Meanwhile, all medical officers should acquaint themselves with the contents of Publication 91-596, 91st Congress S.2193 of 29 December 1970 (Williams-Steiger Occupational Safety and Health Act of 1970). They should not be satisfied with the outmoded excuse that preventive medicine costs money. The alternative costs far more. Let's make hygiene a community affair.

CAPT D.C. Good, MC, USN
Assistant Fleet Medical Officer
U.S. Pacific Fleet

OXYGEN MASK MODIFICATIONS

Inputs from Fleet units engaged in air combat maneuvers indicate difficulty of ensuring proper A-13A oxygen mask utilization. This is caused by the discomfort associated with mask bulk/weight as well as restraint to unencumbered head movement occasioned by the stiffeners of the present oxygen delivery hose assembly. The A-13A mask is currently being modified to include a soft oxygen delivery hose assembly to help correct these problems.—Flight Surgeon's News, Code 5, BUMED.

Malingering, Hysteria and Sociopathy: A Case Report

By LCDR Armando R. Favazza, MC, USNR,*
Neuropsychiatry Service, Naval Hospital,
Oakland, California.

Truthfulness is an important quality, not only from the medical standpoint but also from the standpoint of daily living. Patients, for example, may not take medication as prescribed, yet frequently they will state falsely that they are doing what their physician "ordered." In everyday life many falsehoods are spoken, sometimes for discernible, and sometimes for undiscernible reasons. In law trials, a judge or jury may pronounce "the truth" and we must accept this decision, even though objectively it may not be a correct one.

The determination of what the truth is in a given situation may be extremely difficult. A Swedish proverb which states that "there is no liar like an eye witness," points up the possibility of being so deluded by what one sees that a personally honest, but objectively untrue interpretation of an event can result. Even various lie detector machines, which attempt to correlate physiologic data with verbal statements can

be overridden by an individual who represses memories of an event. A person who consciously tells an untruth is labeled malingering. If the telling of untruths is part of a life-long problem of avoiding responsibility and breaking rules, he is labeled a sociopath. If the telling of an untruth is the result of a primarily unconscious neurotic difficulty, he is labeled an hysteric.

The relationship between malingering, sociopathy and hysteria is close; often it is impossible to delineate among the three. The following perplexing case provides a vivid illustration of the complexities surrounding the issue of truthfulness.

Case Report

A 20-year-old married sailor, with about two years of active duty, calmly appeared at the emergency room complaining that he did not know where he had been for the preceding two weeks. To the examining psychiatrist's surprise, the patient appeared to become acutely anxious and panicky. The patient hallucinated that strange men were coming out of the oxygen hose attached to the wall of the emergency room. He was admitted to the hospital, sent to the closed ward and received no medication.

*Dr. Favazza was recently released from active duty and is currently located at Highland Hospital in Oakland, Calif.

The opinions or assertions contained herein are those of the author and are not to be construed as official or necessarily reflecting the views of the Navy Department or the naval service at large.

The next day he was calm, denied the hallucinations observed on the previous day, and was then transferred to an open ward. Mental status examination at that time revealed the patient to be overweight; talkative; puzzled by a two-week memory loss, yet inappropriately indifferent to it. He was dramatic as he answered questions and tended to exaggerate. There was no evidence of a primary thought or mood disorder. His sensorium was clear. Intelligence was judged to be low-normal. Physical examination revealed no apparent abnormality.

The patient was an only child. His father died when the patient was two years old. His mother was possessive and overprotective. He dropped out of high school because he was bored. He had dated rarely and had few interests. He joined the Navy because "there was nothing else to do and I wanted to get away from home."

After successfully completing boot camp and a brief tour of sea duty, he was involved in a minor work accident in which he bumped his head. He had complained of severe headaches and was admitted to the hospital for a thorough neurological work-up, which failed to demonstrate any evidence of pathology. He subsequently managed to manipulate his way to a Medical Holding Company for a stay of several months. During this period he met a girl and proposed marriage. His mother was infuriated, but the patient persisted in his marriage plans. The mother came to the wedding and publicly seemed resigned to the union. Privately, she castigated her son "with both barrels" and threatened to break up the marriage. The patient took his bride to his mother's home for the honeymoon. The mother berated his wife and the couple left her home, upset.

The patient had returned to duty and was assigned to a ship. While awaiting the ship's return from sea trials, he discovered that his wife had been pregnant for a short period before the wedding. Both he and his wife were frightened of the pregnancy. The patient then claimed that "some guy" gave him LSD and he took it. His next memory was that of appearing at the hospital emergency room two weeks later.

The patient's wife was interviewed and her physical resemblance to the patient was striking. She related the following story. The patient had returned home from duty early and suggested they take a "long" car ride. She fell asleep and awoke nine hours later, 500 miles from home. She was groggy and went back to sleep. She again awoke 15 hours later to find herself over 1000 miles from home. She claimed amnesia for most of the subsequent two weeks, remembering, vaguely, only an auto accident, her stay in a hospital,

an airplane flight, and a night in a luxury hotel. Her first clear memory was that of awakening in a local hospital two days before the current interview. The patient was present while his wife told her story. He seemed puzzled by what she recounted.

The enlisted men on the psychiatry ward were extremely skeptical in community meetings when the patient announced the circumstances of his admission. They accused him of lying. He became defensive and over the next few days, succeeded in alienating the entire ward. He told deliberate lies which were very easy to trace down. As an example, he told the ward his wife had been crippled in the auto accident, yet she appeared the next day to visit and seemed physically healthy.

Without going into great detail, suffice it to say that the patient's next month in the hospital was quite confusing. Through some detective work it was discovered that there, indeed, had been an auto accident. Nothing else is clear. The patient eventually reversed his story, "admitted" that he had been lying, that he had planned to go UA and was fully conscious of what had happened during his two-week absence. A lawyer was engaged in connection with the auto accident and the patient told him a conflicting story.

The patient and his wife were seen conjointly. Both were exceedingly immature. They argued constantly. She believed that her husband was really amnesic for the two-week period. The patient believed that his wife really was amnesic for the two-week period. Nothing was resolved except that the patient's wife decided to live with her parents. The patient would not cooperate with therapy. Psychological testing confirmed the hysterical qualities exhibited by the couple. A diagnosis of fugue state, resolved, was made and the patient was recommended for administrative discharge from the Navy because of an immature personality.

Discussion

Was the patient a malingerer, a sociopath and/or an hysteric? The relationship between malingering and hysteria has long been appreciated by psychiatrists. Both hysteria and malingering are initiated because the patient seeks to gain something. The hysteric, however, is never clearly aware of his motive. The motive may be so close to consciousness, however, that hysteria and malingering coexist. Through the process of dissociation the motive may be vague, but frequently the patient willfully encourages the development of dissociation. It almost becomes unnecessary to mangle, since the hysteric believes what he wants to believe and that which best serves his interest. The hysteric

deceives himself and often succeeds in deceiving others. Amnesic flight, or fugue, represents the wish "to get away from it all and forget everything."

The relationship between hysteria and sociopathy has only recently been elucidated. Robins¹ reported that 20 out of 76 adolescent girls, seen in a clinic because of antisocial behavior were diagnosed as hysterics when they were adults. Forrest² noted significant sociopathy, drug and alcohol abuse in patients with a diagnosis of hysteria. In a controlled comparison of women with anxiety and hysterical neuroses, Guze et al.,³ reported a significant clinical and familiar association between hysteria and sociopathy. Cloninger and Guze,⁴ noting that hysteria is commonly diagnosed in women and sociopathy in men, wrote: "Depending upon the sex of the individual, the same etiologic and pathogenetic factors may lead to different, though sometimes overlapping, clinical pictures."

It would be clinically accurate to state that both the patient and his wife were immature, hysterical, and malingerers. Sociopathy is a harsh label and one that many psychiatrists assign only with reluctance. The relatives of both the patient and his wife, however, asserted that each was a chronic pathologic liar.

The professional staff believed that the patient was in a fugue state and that he reversed his story completely because he preferred the possibility of a brig sentence (for being UA) to facing the responsibility of being a father and husband. The entire objective truth of the case will probably never be ascertained. Only a court of law can declare what is truthful. The wise old admonition, "to thine ownself be true,"

becomes a mockery in the hands of the malingerer-hysterical sociopath, the master of self-deceit.

Summary

A case report of a husband and wife, both of whom claimed to have undergone a simultaneous fugue state, is presented. The case was complicated further when the husband reversed his stand and stated that he had lied about his amnesia and was totally conscious of his past actions. The difficulty of discovering what really had occurred is discussed. The relationship between malingering and hysteria, and their frequent coexistence, has long been appreciated by psychiatrists. Only recently has the relationship of sociopathy to hysteria been adequately elucidated.

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ENVIRONMENTAL PROTECTION AWARDS

Nominations are being accepted for this year's Secretary of the Navy Environmental Protection Awards. These awards are made each year to the best activities in three categories: ships, Naval Research and Development Laboratories and other naval shore activities.

The Environmental Protection Awards are designed to promote excellence in environmental protection within the Navy by recognition of units which have demonstrated outstanding leadership in environmental matters, innovations in development of new equipment to solve pollution problems and exemplary approaches in training and daily operations aimed at environmental protection.

The awards are made in June each year. All nominations should be forwarded in accordance with OPNAVINST 5305.1 of 8 Dec. 1971.—NAV-NEWS, Washington, D.C. ☛

Read on Macduff...

This column ordinarily presents "immortal classics" gleaned from numerous medical reports which have been brought to our attention. If you commonly sign reports without reading them, you may be dubbed Macduff. Names and identifying marks have been omitted to protect the guilty. For the following gems we are indebted to CAPT William K. Bottomley, DC, USN of the Naval Graduate Dental School.

INTRODUCTION

It has long been known that . . . *I haven't bothered to look up the original reference.*

. . . of great theoretical and practical importance . . . *interesting to me.*

While it has not been possible to provide definite answers to these questions . . . *The experiments didn't work out, but I figured I could at least get a publication out of it.*

EXPERIMENTAL PROCEDURE

The xx stain was chosen as especially suitable to show the predicted behavior . . . *the fellow in the next lab had some already made up.*

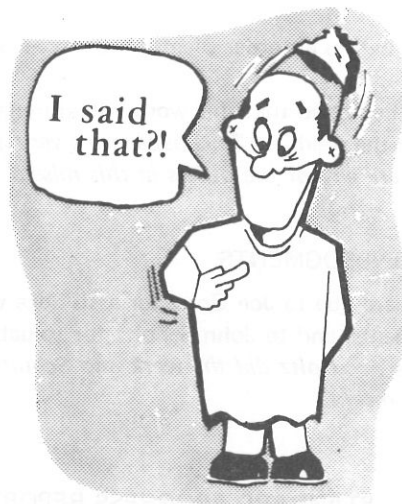
High purity . . . very high purity . . . extremely high purity . . . super-purity . . . spectroscopically pure . . . *Composition unknown except for the exaggerated claims of the supplier.*

A fiducial reference line . . . *a scratch.*

Three of the samples were chosen for detailed study . . . *The results on the others didn't make sense and were ignored.*

. . . accidentally strained during mounting . . . *dropped on the floor.*

. . . handled with extreme care throughout the experiments . . . *not dropped on the floor.*



RESULTS

Typical results are shown . . . *the best results are shown.*

Presumably at longer times . . . *I didn't take time to find out.*

The agreement with the predicted curve is excellent . . . *fair*

The agreement with the predicted curve is good . . . *poor*

The agreement with the predicted curve is satisfactory . . . *doubtful*

The agreement with the predicted curve is fair . . . *imaginary.*

. . . as good as could be expected considering the approximations made in the analysis . . . *nonexistent.*

These results will be reported at a later date . . . *I might possibly get around to this sometime.*

The most reliable values are those of Jones . . . *He was a student of mine.*

DISCUSSION

It is suggested that . . . It is believed that . . . It may be that . . . *I believe.*

It is generally believed that . . . *a couple of other guys think so too.*

It is clear that much additional work will be required before a complete understanding . . . *I don't understand it.*

Correct within an order of magnitude . . . *wrong*.

It is to be hoped that this work will stimulate further work in the field . . . *This paper isn't very good, but neither are any of the others in this miserable subject.*

ACKNOWLEDGMENTS

Thanks are due to Joe Goltz for assistance with the experiments, and to John Schultz for valuable discussions . . . *Goltz did the work and Schultz explained what it meant.*

STANDARD PROGRESS REPORT (FOR THOSE WITH NO PROGRESS TO REPORT)

During the report period which ends (fill in appropriate date), considerable progress has been made in the preliminary work directed toward the establishment of the initial activities. (*We are getting ready to start, but we haven't done anything yet.*) The background information has been surveyed and the functional structure of the component parts of the cognizant organization has been clarified. (*We looked at the assignment and decided that George would do it.*)

Considerable difficulty has been encountered in the selection of optimum materials and experimental methods, but this problem is being attacked vigorously and we expect that the development phase will proceed at a satisfactory rate. (*George is looking through the handbook.*) In order to prevent unnecessary duplication of previous efforts in the same field, it was neces-

sary to establish a survey team which has conducted a rather extensive tour through various facilities in the immediate vicinity of manufacturer. (*George and Harry had a nice time in New York.*)

The Steering Committee held its regular meeting and considered rather important policy matters pertaining to the over-all organizational levels of the line and staff responsibilities that devolve on the personnel associated with the specific assignments resulting from the broad functional specifications. (*Untranslatable . . . sorry.*) It is believed that the rate of progress will continue to accelerate as necessary personnel are recruited to fill vacant billets. (*We'll get some work done as soon as we find someone who knows something.*)

I'll close by giving you a British engineering professor's delightful statement concerning the values of clear and obscure style:

"In the end the proud scientist or philosopher who cannot be bothered to make his thought accessible has no choice but to retire to the heights in which dwell the Great Misunderstood and the Great Ignored, there to rail in Olympic superiority at the folly of mankind.

"Only if an author has little of value to say may he indulge in an obscure style. Then it may even be an asset to him for it may cause his contributions to learned societies to escape criticism, to be measured by their bulk and not by their content." (*This last sentence is just wonderful.*) "If an author is a humbug, he had better also be unreadable; he will then not be found out." 🍄

NEW DEPUTY SEC DEF

President Nixon nominated William P. Clements, Jr., to be Deputy Secretary of Defense on 4 Jan. The appointment was confirmed by the U.S. Senate on 23 Jan. Mr. Clements was a member of the DOD Blue Ribbon Panel in 1969-1970, and has been active in numerous civic and educational activities in Dallas, Tex., and throughout the Southwest. He has been a trustee of the Southwestern Medical School of the University of Texas, a trustee of the Texas Research Foundation, and was a member of the Steering Committee of the Dallas County Committee for the White House Conference on Children and Youth. 🍄



REVISED GUIDELINES FOR ADMINISTERING PHYSICAL DISABILITY RETIREMENTS

The Secretary of Defense recently issued revised guidelines to the military departments for administering physical disability retirement laws. The purpose of the guidelines is to insure greater consistency in the way determinations of unfitness for duty are made. Previously, there have been some variations in the treatment of service members by the four services.

The revised guidelines require that a service member be found fit for active duty unless he is unable to satisfactorily perform the duties of his office, rank, grade or rating. If the member has performed his normal duties until his time of separation, it will be presumed that he is fit for duty. While a member may request review of the presumption of fitness, evaluation boards normally will be required to give greater weight to his continued performance than to clinical estimates by health personnel of his ability to perform his duties.

Determinations of fitness under the new guidelines will be closely monitored.

The guidelines are not intended to affect the future physical disability retirement of those few disabled members, such as amputees, who, although not qualified for normal military duty, are retained on active duty in a limited-assignment status because of their special skills or expertise.

The revised guidelines, quoted below, are being incorporated in Department of Defense Directive 1332.18, "Uniform Interpretation of Laws Relating to Separation from the Military Service by Reason of Physical Disability." A change to BUMED Instruction 6120.6 series, "Physical Examination prior to Separation from Active Duty" is also forthcoming.

1. Physical disability separation laws are designed to

provide for the retirement or separation of a member who is determined to be unfit to perform the duties of his office, grade, rank, *or* rating. Other laws provide for the separation of a member who, at the time of separation, is fit to continue to perform the duties of his office, grade, rank, or rating. A member separated under these other laws may have physical disabilities at the time of his separation and they could affect his potential for civilian employment. In some cases the effect on some civilian pursuits may be significant. Such a member may, if he desires, apply to the Veterans Administration at the time of, or after release from active duty for adjudication of any claim for benefits for these physical conditions.

2. A determination of unfitness is a factual finding that a member is unfit to perform the duties of his office, rank, grade or rating. When such a finding is made, it would usually be inconsistent to expect the member to continue to perform satisfactorily in his office, rank, grade, *or* rating. Exceptions may be made when the Secretary of a military department determines that a particular member's experience or skill, or a combination thereof, is such that it would be in the best interests of the department to retain the member on active duty in a limited assignment status. If a member is fit to perform the duties of his office, rank, grade, or rating, he may not be separated for physical disability; if he is unfit to perform such duties, he may not be retained on active duty, unless he is retained as an exception to policy in a limited-assignment status.

3. The standard schedule of rating disabilities in use by the Veterans Administration is irrelevant to determinations of fitness or unfitness for active duty. It is

only used after a finding of unfitness has been made to determine disposition and compensation for a member.

4. To ensure that all members are physically qualified to perform their duties in a reasonably satisfactory manner, physical fitness standards, including guidelines for applying them to fitness determinations in individual cases, may be established for the purpose of referring members for physical evaluation determination. However, in all cases the physical condition of the individual must be evaluated against the physical requirements of his particular office, rank, grade, or rating, and the fact that he has one or more defects sufficient to require his referral for evaluation or that may be unfitting for members in a different office, grade, rank or rating does not justify a determination of unfitness.

5. In evaluating the fitness of a member, the evaluation board must request and consider all relevant evidence. (For example, when a referral for physical evaluation immediately follows acute, grave illness or injury, the medical evaluation may have the greatest weight, particularly if medical evidence establishes that continued service would be deleterious to the member's health. However, when a member is referred for physical evaluation under other circumstances, evaluations of his performance of duty by his supervisors [letters, efficiency reports, or personal testimony] may provide better evidence than a clinical estimate by a physician of the member's physical ability to perform the duties of his office, rank, grade or rating. Thus, if the evidence establishes that the member adequately performed the normal duties of his office, rank, grade, or rating until the time he was referred for physical evaluation, he might be considered fit for duty, even though medical evidence indicates his physical ability to perform such duties may be questionable. On the other hand, regardless of the presence of physical deficiencies, inadequate performance, per se, could not be considered as evidence of physical unfitness for a member's office, rank, grade, or rating unless it appears that there is a cause-effect relationship between the two factors.)

6. When a member is being processed for separation for reasons other than physical disability, his continued performance of duty until he is scheduled for separation for other purposes creates a presumption that the member is fit for duty. Except for a member who was previously retained in a limited assignment duty status, such a member would not be referred to a physical evaluation board unless his physical defects raise substantial doubt that he is fit to continue to perform the duties of his office, rank, grade or rating.

7. When a member scheduled for separation for other purposes is referred to an evaluation board, the

presumption of fitness may be overcome if the evidence establishes that:

a. The member, in fact, was physically unable to adequately perform the duties of his office, rank, grade, or rating even though he was improperly retained in that office, rank, grade, or rating for a period of time.

b. Acute, grave illness or injury or other deterioration of physical condition that occurred immediately prior to, or coincidentally with the member's separation for reasons other than physical disability, rendered him unfit for further duty.

When the member's referral for physical evaluation is related to physical examinations given as a part of non-disability retirement processing, evidence must be clear and convincing to overcome the presumption of fitness. In other cases, the presumption of fitness may be overcome by a preponderance of the evidence.

8. Requirements for placement on the Temporary Disability Retired List (TDRL) are the same as for "permanent" retirement, except that a member is placed on the TDRL when his disability is not determined to be of a permanent nature. He must be unfit to perform the duties of his office, rank, grade, or rating at the time he is placed on the TDRL. Accordingly, a member who is fit for continued active duty at the time of his separation from active duty may not be placed on the TDRL, regardless of the severity of his physical defects or the fact that they might become unfitting were the member to remain on active duty for a period of time.—Code 33, BUMED. ☛

RESERVE RETIREMENT POINTS — CRITERIA FOR EARNING TWO IN ONE DAY

The Chief of Naval Personnel has received correspondence which disclosed areas of misinterpretation concerning multiple drill time requirements for earning two retirement points in a single calendar day. Accordingly, the following guidance was provided to those activities concerned with administration of the Naval Reserve Program. This information is of special interest to the many Medical Department Reservists who are drilling in two or more capacities.

When two drill periods are conducted in the same calendar day, they must conform with the criteria specified for "multiple drill periods" contained in BUPERS-INST 5400.1R, in order to qualify for two retirement points. Specifically, when two drills are conducted in the same calendar day, each drill must last at least four hours with time devoted to training totaling at least eight hours in duration.

There have been instances of individuals performing two separate drills with two different units on the same calendar day. Although the individual drill periods were in harmony with the minimum drill time requirements cited for their respective programs, they had not been in conformance with the time requirements designated for multiple drill periods. An example of the foregoing is: attendance at a two-hour Naval Reserve Support Unit drill in the afternoon, and subsequent participation in a two-hour NROS course session in the evening of the same day. Such participation does not meet the multiple drill period criteria; accordingly, only one retirement point is authorized for the day's participation. When such participation is performed independently on two separate days, two retirement points are authorized — one per drill day.—Code 36, BUMED. ☘

CHANGES IN NAVAL RESERVE RECORD MAINTENANCE

The conversion of the official personnel records maintained within the Bureau of Naval Personnel from flat paper documents to microfilm is expected to begin in the near future. The conversion to a microfilm personnel records system will provide an opportunity for the removal from present records, and the future elimination from the record-keeping system of duplicated information and other documents or material considered nonessential to the maintenance of a chronological service history of the individual.

Over the years selection boards and other record users have complained about the tremendous amount of material, of little or doubtful significance generated throughout the naval establishment which ultimately is filed in personnel records. The practice makes a review of the record difficult and may, on occasion, result in someone overlooking highly significant material. One area specifically mentioned by most record reviewers is the mass of complimentary correspondence that is not appropriate for filing and has been forwarded as commendatory letters by individuals and commands. This comment is not intended to discourage forwarding of communications which are indicative of action or performance at a level beyond that which would normally be expected from any individual under similar circumstances. However, thought should be given the possibility that commendatory comments and letters can be reflected when preparing the remarks section of the periodic fitness reports.

Some Reservists choose to periodically submit a

summary of their participation. This is unnecessary, since the Annual Qualifications Questionnaire (AQQ) is specifically designed for this purpose. Greater emphasis on the correct use of traditional methods of reporting, e.g., fitness report and the AQQ, can be expected with purification of personnel records in preparation for conversion to a microfilm system. Remember a voluminous record does not necessarily work in a person's favor. Be certain your record is complete, but as concise as possible.—Code 36, BUMED. ☘

MEDICAL OFFICERS NEEDED FOR ACDUTRA

A shortage of physicians will occur at various Navy activities during the early summer months, because of the departure of medical officers before the arrival of replacements.

Should you be contemplating ACDUTRA and desire a meaningful tour of duty, you may be pleasantly surprised by the opportunities for just such an assignment offered among the activities listed below. Within each specialty listing, the urgency of requirement for Naval Reserve assistance is indicated by the order in which activities are listed. Activities near the top of each list may be completely without coverage during the time indicated. General medical officer billets are listed by area rather than by urgency of requirement. All stations are hospitals unless otherwise indicated.

The usual budgetary constraints should be considered when making your choice of duty. Requests which require coast-to-coast travel usually cannot be given favorable consideration.

If you are interested in ACDUTRA during the coming summer months, we would like to recommend that you consider one of the activities on this list. ACDUTRA requests should be forwarded to your District Medical Program Officer for action as soon as possible.

| Specialty/Location | Period Services are Required | |
|-----------------------|------------------------------|-------------|
| | 6/25-7/9/73 | 7/2-7/16/73 |
| <i>Anesthesiology</i> | | |
| Lemoore, Calif. | | X |
| New London, Conn. | | X |
| Beaufort, S.C. | | X |
| Bremerton, Wash. | X | |
| Orlando, Fla. | | X |
| Newport, R.I. | X | |
| Portsmouth, N.H. | X | |

| Specialty/Location | Period Services are Required | |
|------------------------|------------------------------|-------------|
| | 6/25-7/9/73 | 7/2-7/16/73 |
| <i>Urology</i> | | |
| Beaufort, S.C. | X | |
| Orlando, Fla. | X | |
| St. Albans, N.Y. | | X |
| Camp Lejeune, N.C. | X | |
| Camp Pendleton, Calif. | | X |
| Jacksonville, Fla. | | X |
| Long Beach, Calif. | | X |
| Newport, R.I. | | X |
| Pensacola, Fla. | | X |
| Philadelphia, Pa. | | X |
| <i>Medicine</i> | | |
| Portsmouth, N.H. | | X |
| Whidbey Island, Wash. | | X |
| Corpus Christi, Tex. | | X |
| Memphis, Tenn. | | X |
| Quonset Point, R.I. | X | X |
| New London, Conn. | | X |
| Patuxent River, Md. | | X |
| Port Hueneme, Calif. | | X |
| <i>Otolaryngology</i> | | |
| Boston, Mass. | X | X |
| St. Albans, N.Y. | | X |
| Memphis, Tenn. | | X |
| Pensacola, Fla. | | X |
| Orlando, Fla. | | X |
| <i>Orthopedics</i> | | |
| Port Hueneme, Calif. | | X |
| Portsmouth, N.H. | | X |
| <i>Radiology</i> | | |
| Beaufort, S.C. | | X |
| Boston, Mass. | | X |
| Cherry Point, N.C. | | X |
| Corpus Christi, Tex. | | X |
| Pensacola, Fla. | | X |
| Port Hueneme, Calif. | | X |
| Quantico, Va. | X | |

| Specialty/Location | Period Services are Required | |
|---------------------------------------|------------------------------|-------------|
| | 6/25-7/9/73 | 7/2-7/16/73 |
| <i>Radiology (Con.)</i> | | |
| Camp Pendleton, N.C. | X | |
| Jacksonville, Fla. | | X |
| Newport, R.I. | | X |
| Camp Lejeune, N.C. | | X |
| Key West, Fla. | | X |
| Memphis, Tenn. | | X |
| Orlando, Fla. | | X |
| Portsmouth, N.H. | | X |
| <i>Ophthalmology</i> | | |
| Beaufort, S.C. | X | |
| Bremerton, Wash. | | X |
| Charleston, S.C. | | X |
| Key West, Fla. | | X |
| Memphis, Tenn. | X | |
| Portsmouth, N.H. | | X |
| New London, Conn. | | X |
| Dispensary, Wash., D.C. | | X |
| U.S. Naval Academy, Annapolis, Md. | | X |
| St. Albans, N.Y. | X | X |
| Newport, R.I. | | X |
| <i>Pathology</i> | | |
| Beaufort, S.C. | | X |
| Long Beach, Calif. | | X |
| Orlando, Fla. | | X |
| Pensacola, Fla. | | X |
| <i>Dermatology</i> | | |
| Annapolis, Md. | | X |
| Newport, R.I. | | X |
| Dispensary, Wash., D.C. | | X |
| Orlando, Fla. | | X |
| Pensacola, Fla. | | X |
| St. Albans, N.Y. | | X |
| <i>General Surgery</i> | | |
| Patuxent River, Md. | | X |
| Beaufort, S.C. | | X |

| Specialty/Location | Period Services are Required | |
|--------------------|------------------------------|-------------|
| | 6/25-7/9/73 | 7/2-7/16/73 |

General Medical Officers
(Services required June-July 1973)

General Surgery (Con.)

| | | |
|----------------------|---|---|
| Cherry Point, N.C. | X | X |
| Corpus Christi, Tex. | | X |
| Lemoore, Calif. | X | X |
| Port Hueneme, Calif. | | X |
| Key West, Fla. | | X |
| Quonset Point, R.I. | | X |

Neurosurgery

| | | |
|------------------------|---|---|
| Boston, Mass. | X | |
| Memphis, Tenn. | | X |
| Camp Pendleton, Calif. | | X |
| Philadelphia, Pa. | | X |

Pediatrics

| | | |
|----------------|--|---|
| Annapolis, Md. | | X |
|----------------|--|---|

Plastic Surgery

| | | |
|-------------------|--|---|
| Great Lakes, Ill. | | X |
| Portsmouth, Va. | | X |

Thoracic Surgery

| | | |
|-----------------|--|---|
| Portsmouth, Va. | | X |
|-----------------|--|---|

OB/GYN

| | | |
|----------------------|---|---|
| Corpus Christi, Tex. | X | X |
| Great Lakes, Ill. | X | |
| Long Beach, Calif. | X | X |
| Albany, Ga. | | X |
| Bremerton, Wash. | | X |
| Boston, Mass. | | X |
| Cherry Point, N.C. | | X |
| Key West, Fla. | | X |
| Lemoore, Calif. | | X |
| Memphis, Tenn. | | X |
| Newport, R.I. | | X |
| Orlando, Fla. | | X |
| Pensacola, Fla. | | X |
| New London, Conn. | | X |

Navy Dispensary, Wash., D.C.
 MCEDC, Quantico, Va.
 NAS, South Weymouth, Mass.
 NS, Newport, R.I.
 CBC, Davisville, R.I.
 SPCC, Mechanicsburg, Pa.
 NAS, Willow Grove, Pa.
 NTC, Bainbridge, Md.
 2ND Marine Division, Camp Lejeune, N.C.
 NH, Charleston, S.C.
 MCAS, Beaufort, S.C.
 MCRD, Parris Island, S.C.
 SCS, Athens, Ga.
 NH, Orlando, Fla.
 NAS Memphis, Tenn.
 NAS Meridian, Miss.
 NH, Corpus Christi, Tex.
 NTC, Great Lakes, Ill.
 NAS Glenview, Ill.
 NAF, Detroit, Mich.
 NTC, San Diego, Calif.
 MCRD, San Diego, Calif.
 NSL, San Diego, Calif.
 NH, Long Beach, Calif.
 MCB, Camp Pendleton, Calif.
 1ST Marine Division, Camp Pendleton, Calif.
 NAS, Pt. Mugu, Calif.
 NWS, Seal Beach, Calif.
 MCB, 29 Palms, Calif.
 MCAS, Yuma, Calif.
 NAF, China Lake, Calif.
 NAS, Alameda, Calif.
 NSC, Oakland, Calif.
 NSY, Hunters Pt, San Francisco, Calif.
 WSA, Mare Island, Calif.
 NWS, Concord, Calif.
 NPGS, Monterey, Calif.
 NH, Bremerton, Wash.
 Navy Dispensary, Seattle, Wash. ☸

**ACDUTRA OPPORTUNITIES FOR
RESERVE HOSPITAL CORPSMEN**

The Navy is experiencing a shortage of Hospital Corpsmen in certain technical areas. While this shortage is expected to continue through the remainder of calendar year 1973, it will be particularly acute during the summer months, May through July.

There will be an urgent need for the services of Naval Reserve Hospital Corpsmen qualified in any laboratory specialty, plus X-ray Technicians and Pharmacy Technicians at all CONUS naval hospitals during the latter half of this year. Corpsmen in these specialties

are invited to request hospital ACDUTRA through the appropriate Naval District.

District Medical Program Officers have been informed of this situation and will assist interested Reservists in their planning.—Code 36, BUMED. ☛

POSTGRADUATE SHORT COURSES IN CONTINUING EDUCATION ARMED FORCES INSTITUTE OF PATHOLOGY FISCAL YEAR 1974

| <i>COURSE TITLE</i> | <i>DATES</i> | <i>FEE</i> |
|--|-----------------------|-------------------------------------|
| 1. Radiologic Training Program | 30 Jul - 21 Sept 1973 | — |
| 2. Pathology of Radiation Injury | 10 - 14 Sept 1973 | \$125 |
| 3. Pathology of Laboratory Animals | 17 - 21 Sept 1973 | \$125 |
| 4. Orthopedic Pathology (Orthopedic Surgeons) | 24 Sept - 2 Nov 1973 | (Military personnel only) |
| 5. Forensic Dentistry | 1 - 4 Oct 1973 | \$100 |
| 6. Symposium on Histopathologic Techniques | 1 - 4 Oct 1973 | \$100 |
| 7. Legal Medicine Symposium | 17 - 19 Oct 1973 | (Military & Federal personnel only) |
| 8. Ophthalmic Pathology (No. 1) | 5 - 9 Nov 1973 | \$125 |
| 9. Gynecological Pathology | 5 - 9 Nov 1973 | \$125 |
| 10. Forensic Pathology | 12 - 16 Nov 1973 | \$125 |
| 11. Introduction to Electron Microscopy | 26 - 30 Nov 1973 | \$125 |
| 12. Radiologic Training Program (No. 2) | 1 Oct - 21 Nov 1973 | — |
| 13. Application of Histochemistry to Pathology | 7 - 11 Jan 1974 | \$125 |
| 14. Radiologic Training Program (No. 3) | 7 Jan - 1 Mar 1974 | — |
| 15. Genitourinary Pathology | 14 - 18 Jan 1974 | \$125 |
| 16. Neuropathology | 21 - 25 Jan 1974 | \$125 |
| 17. Aerospace Pathology | 28 - 30 Jan 1974 | \$ 75 |
| 18. Genetics, Pathology & Diseases | 4 - 7 Feb 1974 | \$100 |
| 19. Orthopedic Pathology (Military Pathologists) | 9 - 16 Feb 1974 | (Military personnel only) |
| 20. Oral Pathology, 21st Annual Course | 4 - 8 Mar 1974 | \$125 |
| 21. Radiologic Training Program (No. 4) | 4 Mar - 26 Apr 1974 | — |
| 22. AFIP Lectures, 14th Annual | 25 - 29 Mar 1974 | \$125 |
| 23. Ophthalmic Pathology (No. 2) | 1 - 5 Apr 1974 | \$125 |
| 24. Otolaryngology Basic Science Course | 8 Apr - 17 May 1974 | (Military personnel only) |
| 25. Accident Pathology | 6 - 8 May 1974 | \$ 75 |
| 26. Comparative Pathology | 13 - 15 May 1974 | \$ 75 |
| 27. Radiologic Training Program (No. 5) | 6 May - 28 Jun 1974 | — |

For the above courses, there is no fee for Federal and military personnel. For further information, please call or write to the Armed Forces Institute of Pathology, Associate Director for Education (AFIP-EDZ), Washington, D.C. 20306. Phone: 202-576-2934. ☛

NAVAL HOSPITAL BOSTON SPRING SYMPOSIUM: COME RESERVISTS, COME ALL

A FORWARD LOOK IN MEDICINE

The Fourth Annual Spring Symposium of the Naval Hospital Boston will be held on May 16, 17 and 18, 1973. The presentations will focus on areas of current research and development that promise to enhance the quality and efficiency of future health care.

There will be separate sections for the major medical specialties, dentistry, nursing, and administration. All interested physicians, dentists, nurses, and paramedical personnel are invited to attend or participate. A special social function is planned for the evening of May 17th.

The meeting has been approved for retirement point credit. Reservists please note!

Any individual wishing to participate in the Symposium should have submitted an abstract of his paper, of no more than 200 words, prior to 15 Mar 1973 to CAPT J.M. Young, Program Co-Chairman. In addition, those desiring to present a scientific exhibit should also have submitted an application.

All abstracts, exhibit applications, and requests for further information should be directed to:

CAPT J.M. Young, MC, USN
Program Co-Chairman
Naval Hospital Boston
Chelsea, Massachusetts 02150 ☎

AMA ANNUAL CONVENTION NYC, 23-27 JUNE 1973

The Military Medicine Section of The Annual American Medical Association Convention for 1973 looks worthwhile, with two half-day sessions wherein three

papers plus a symposium will be offered on each day, as follows:

June 26

- 0900 — High risk pregnancy — a scheme for identification and management, COL J.W. Pearson, MC, USA.
- 0920 — Anaerobic pleuropulmonary infections, J. Barlett, M.D.
- 0940 — Total body washout in the management of stage IV hepatic coma, COL G. Klebanoff, MC, USAF.
- 1000-1200 — Symposium: Modern concepts in treatment of end stage kidney disease.
Mod: A.R. Lavender, M.D.

June 27

- 0900 — The status of standards for control of the environment in health care facilities, F.D. Arnold, Ph.D.
- 0920 — Analysis of fatal vehicular accidents of Air Force with special attention to alcohol, LTCOL R.S. Von Hazmburg, MC, USAF.
- 0940 — Advances and treatment of traumatic subdural hematomas, CAPT F.E. Jackson, MC, USN.
- 1000-1200 — Symposium: Diseases of Travel.
Mod: COL J. Greenberg, MC, USA.

Federal and Military Medicine have also been selected to put on a course of instruction in "Total Management of the Burn Patient." Director of the course will be COL Basil W. Pruitt, Jr., MC, Director of the U.S. Army Surgical Research Unit at Fort Sam Houston, Tex. The course will be given on 24 June as a six-hour block of instruction.

Plan to come. That's AMA Convention, New York City Coliseum, 23-27 June, 1973. ☎

"MISSING STATUS"

By law, "missing status" encompasses the status of a member of a Uniformed Service who is officially carried or determined to be absent as a result of being:

1) missing, 2) missing in action, 3) interned in a foreign country, 4) captured, beleaguered, or besieged by a hostile force, or 5) detained in a foreign country against his will. ☎

CHAMPUS FLASH

INFRA-CODE is a new training program for the deaf and is a technique that *cannot* be approved under CHAMPUS. The technique is currently undergoing scientific evaluation and has not yet been accepted by the medical community.—Health Benefits Counselor Bulletin, BUMED, Washington, D.C. ☎

OFFICIAL INSTRUCTIONS AND DIRECTIVES

BUMEDINST 5300.4 of 1 Dec 1972

Subj: Disposition of rehabilitated chronic alcoholic aircrew personnel and air controllers

This instruction provides guidance for the disposition of rehabilitated chronic alcoholic aircrew and air controller personnel throughout the naval and Marine Corps aviation communities. Within the constraints imposed by flight safety, Federal Aviation Administration (FAA) regulations, OPNAV and BUMED directives, these individuals should be returned as expeditiously as possible to their special duty assignments.

Personnel assigned to duty which requires performance of aerial flights are considered *not* physically qualified for that duty during inpatient treatment for alcoholism. Upon discharge from treatment centers, personnel who are returned to duty while still requiring ANTABUSE therapy are considered *not* physically qualified for duty involving flight operations.

Personnel shall be given complete aviation physical examinations at three-month intervals during the first year following return to duty from an alcoholic rehabilitation center, to include appropriate consultations and evaluation by the examining flight surgeon. When these personnel are physically qualified, they may be placed in a restricted flying status (Service Group III). At the end of a three-month period of duty in Service Group III, and following appropriate reports of reexamination and consultations, personnel who have been found to have maintained sobriety may be returned to unrestricted flying (Service Group I or II). Following return to unrestricted flying, subject personnel shall be reexamined at six-month intervals during the next two years, to insure continuance of their alcoholic recovery state without psychologic or physiologic complications. Each case will be considered on an individual basis by the Advisory Council for Aerospace Medicine.

BUMEDINST 6710.57 of 15 Dec 72

Subj: Drugs, prescription service, supplies (excluding durable equipment), and services for patients

This instruction emphasizes Navy policy regarding provision of materials and services to eligible persons at naval medical and dental facilities.

Outpatients. The dispensing of drugs is an integral part of outpatient treatment. It is subject to the same

regulations and considerations as apply to patient eligibility and priority, as well as the availability of space and facilities, and the capabilities of the medical/dental staff. When an eligible patient is accepted at a Navy facility providing outpatient treatment, the necessary drugs to support the treatment shall be dispensed at no cost to the individual.

Prescriptions written by licensed civilian physicians or dentists may be filled if the prescribed items are in stock, and both dosage and amount are reasonable. (This service shall not include dispensing of narcotics.) When a prescription is for an item not in stock, the pharmacy staff of the naval facility shall contact the writer by the most expeditious practical means, and advise of alternative choices which are stocked at the facility. Whenever practical, civilian physicians and dentists who frequently prescribe for outpatients served by a naval facility pharmacy should be provided with the activity formulary.

Inpatients. Those materials required for the treatment of inpatients shall be provided at no cost by the treating activity. Patients shall not be required to provide such items as perineal pads or disposable diapers for newborn infants.

BUMEDNOTE 6810 of 19 Jan 73

Subj: Prescriptions for spectacles; Health Record entry required

This notice reiterates the requirement for an SF 600 Health Record entry for spectacle prescriptions including frame-measurement data.

BUMED has been advised that spectacle-wearing personnel are being deployed without necessary data in their Health Records to duplicate spectacle orders if required.

All commands and officers are to comply with BUMEDINST 6810.4D and MANMED art. 16-47 (5).

BUMEDNOTE 6770 of 24 Jan 73

Subj: Linens, medical/dental-use; special laundering to prevent static explosion

This notice announces the standardization of sheets and pillowcases which require special laundering to prevent static explosion hazards in medical/dental facilities.

The popularity of combined cotton/polyester fabrics has resulted in decreased industrial production of 100%

cotton fabrics and rapid depletion of inventories. Through the Defense Medical Materiel Board (DMMB), sheets and pillowcases fabricated from a 50/50 cotton/polyester blend are now being standardized by the services for medical/dental use.

However, the manufacturers of the blended fabrics will not guarantee the fabrics to meet the static generation limitations established by the National Fire Protection Association (NFPA). DMMB-standardized items issued through the Defense Supply System will carry a permanent label of caution and laundering instructions concerning the special care required to comply with NFPA standard 56A. Compliance with these standards is mandatory in areas where explosive gases are used. Since oxygen may be used in any part of a treatment facility, the standard is applicable throughout the facility.

All activities using the cotton/polyester blended linens shall initiate local procedures to: (a) Launder them with a suitable ionizing agent before first use in a medical/dental facility; (b) In all subsequent launderings comply with the commercial laundering instructions included with each item upon issue; and (c) Modify laundry service contracts to comply with (a) and (b) above.

BUMEDNOTE 6710 of 14 Feb 73

Subj: Controlled substances

As one facet of Navy implementation of the Comprehensive Drug Abuse Prevention and Control Act of 1970, Field Branch, BUMED was assigned responsibility to monitor issues of controlled substances. A recent review revealed that: (a) Ships without medical officers requisition controlled substances not listed on the pertinent Authorized Medical Allowance Lists (AMALs); (b) Naval Reserve training centers requisition controlled substances for which such activities appear to have no logical demand; (c) Some medical department representatives at ashore and afloat activities (without medical officers) are using amphetamines in weight-control programs.

Action is presently being taken to: (a) Revise BUMEDINST 6700.13E to include two definitions for AMALs (one for activities with medical officers and another for activities without medical officers); (b) Revise MANMED Chap. 21 to limit independent duty hospital corpsmen prescriptions for controlled sub-

stances to those items authorized in appropriate AMALs.

Action required by activities with medical officers:

(a) Monitor medical departments in lower echelons of the chain of command to ensure compliance with the spirit of this notice; (b) Carefully review any medications dispensed in weight-control programs to preclude inappropriate prescriptions for operational personnel in sensitive positions and excessive reliance on anorexians.

Action required by activities without medical officers (ashore and afloat): (a) Initiate immediate procedures to prevent requisitioning of controlled drug substances not listed on the pertinent AMAL; (b) Discontinue prescribing and/or dispensing of non-AMAL controlled drug substances; (c) Submit to Chief, Field Branch, BUMED, via the chain of command, all requests to augment approved AMALs with nonlisted controlled drug substances; (d) Transfer to the next higher echelon with a medical officer all controlled drug substances not currently listed on the appropriate AMAL.

BUMEDNOTE 6250 of 23 Feb 1973

Subj: Cockroach control aboard submarines

The effective prevention of cockroach infestations on submarines is difficult, and the limited number of insecticides approved for use on submarines contributes to the problem. Recent studies have shown that one percent propoxur (Baygon) emulsion is effective for cockroach control and is safe to use aboard submarines provided certain precautions are observed.

Propoxur, 13.9% emulsifiable concentrate, which is used in formulating the 1% emulsion, is not a standard stock item. It must be procured on an open-purchase requisition from commercial distributors. Technical review and approval for procurement must be obtained in accordance with SECNAVINST 5430.54A. One percent propoxur emulsion is applied as a residual treatment subject to the following limitations: (a) The insecticide shall be used only when the ship is in port and is not expected to submerge for 24 hours following treatment; (b) The ship's exhaust air must either be discharged overboard or be used by the ship's engines for a period of 24 hours after application; (c) The propoxur concentrate shall not be transported or stored on submarines; (d) The pesticide shall not be sprayed indiscriminately on bulkheads or overheads. No more than 15% of surface area shall be covered in a single compartment. ☘

AMERICAN BOARD CERTIFICATIONS

American Board of Anesthesiology

LCDR Frank G. Satko, MC, USN

American Board of Family Practice

CDR James F. Ervin, MC, USN

American Board of Internal Medicine

LCDR Robert E. Bondurant, MC, USN (Pulmonary Disease)

CAPT Walter J. Cassidy, Jr., MC, USN

CDR Francis H. Corcoran, MC, USN (Cardio-vascular Disease)

LCDR James J. Couperus, MC, USNR*

LCDR David R. Foreman, MC, USN (Pulmonary Disease)

LCDR Gerhard M. Freisinger, MC, USN

LCDR Melvin V. Goldblat, MC, USNR (Nephrology)

LCDR Michael A. Habib, MC, USN (Hematology)

LCDR Michael J. Hogan, MC, USN

CDR Francis C. Johnson, MC, USN (Pulmonary Disease)

LCDR Carl G. Kardinal, MC, USN (Hematology)

CDR James C. McGlamory, MC, USN (Rheumatology)

LT Robert M. Roberts, MC, USNR

American Board of Internal Medicine (Con.)

LCDR James V. Scutero, MC, USN (Pulmonary Disease)

CDR Richard F. Schillaci, MC, USN (Pulmonary Disease)

CDR David W. Shea, Jr., MC, USN (Pulmonary Disease)

American Board of Otolaryngology

LCDR Allan L. Abramson, MC, USNR

LCDR Bruce Campbell, MC, USNR

American Board of Pathology

LCDR Thomas J. Green, MC, USNR

American Board of Radiology

CAPT James Edward Colburn, MC, USN

American Board of Surgery

LCDR Henry D. Haynes, MC, USN

LCDR James L. Hoehn, MC, USNR

LCDR Geoffrey A. Larsen, MC, USN

LCDR James S. McGinn, MC, USN

LCDR Osbey L. Sayler, MC, USN

*incorrectly listed under American Board of Obstetrics/Gynecology in the February 1973 issue of U.S. NAV MED, p. 43. The error is regretted.

SIGNING IN



RADM Philip O. Geib, MC, USN (right), Assistant Chief of BUMED For Research and Military Medical Specialties (Code 7), signs the guest book before touring facilities of the Naval Aerospace Medical Research Laboratory (NAMRL), Pensacola, Fla., on 6 Mar. CAPT Newton W. Allebach, MC, USN, Officer in Charge of NAMRL, briefed and escorted Admiral Geib during his visit.—PAO, Naval Aerospace Medical Center, Pensacola, Fla.

✠ In Memoriam ✠

CAPT John M. Brewster, MC, USN (Ret.), age 73 years, died of an apparent heart attack on 22 Dec 1972 at the VA Hospital in Philadelphia, Pa.

A graduate of Jefferson Medical College in Philadelphia, CAPT Brewster spent 30 years in the Navy and was the senior medical officer in USS *Pennsylvania* at Pearl Harbor during the Japanese attack in 1941. During World War II, Dr. Brewster treated President Roosevelt during several naval cruises. He also commanded Fleet Hospital 112 in the South Pacific and directed Navy Hospitals, after the war, in Corpus Christi, Tex.; Quantico, Va.; Shoemaker, Calif.; and Great Lakes Naval Base, Ill.

After retiring from the Navy, Dr. Brewster became medical director of the Pennsylvania Railroad Co. and served in that capacity from 1961 to 1964.

Survivors include his wife, Eleanor; a son, Thomas; and a daughter, Mrs. Edith B. Bridgeo.

RADM Thomas G. Hays, MC, USN (Ret.) died on 14 Dec 1972 at the age of 69. He was born in Oakdale, Ill., on 5 Aug 1903. After attending the University of Illinois at Urbana for three years, he received his M. D. degree in 1928 from the University of Illinois School of Medicine in Chicago. He entered the Navy Medical Corps as a LTJG on 29 Jun 1928.

Admiral Hays served as Ward Medical Officer at the San Diego Naval Hospital in Jun 1929 and later served aboard the USS *Henderson* and the USS *Saratoga*. After subsequent service at the San Diego Naval Hospital, he became District Surgeon for the Civilian Conservation Corps Ninth District. From Mar to Dec 1934 he was a member of the surgical staff at the Naval Hospital Bremerton, Wash.

In 1936 he attended the University of Pennsylvania Graduate School of Medicine and was assigned to the Naval Academy in Annapolis, Md., in 1937; he became Assistant in Surgery in 1939 in the Naval Hospital in Annapolis.

In Dec 1940 RADM Hays assumed the duties of Senior Medical Officer in USS *Neville*. Following a

course of instruction at the Mayo Clinic in Rochester, Minn., in Jan 1942 he became Assistant in Surgery at the Naval Hospital, Washington, D.C. He subsequently served at sea in USS *Tennessee*, and in USS *New Jersey* in Mar 1943, which participated in campaigns for the Marshall Islands, Truk and New Guinea.

On 1 Apr 1955 he attained the rank of Rear Admiral and on 10 Apr 1956 Admiral Hays became Fleet Surgeon on the staff of the Commander in Chief, U.S. Pacific Fleet. Having assumed command of the Naval Hospital Oakland, Calif. on 1 Jul 1958, RADM Hays performed additional duty from May 1959 to Oct 1961 as Inspector of Naval Medical Activities, Pacific Coast; and from Oct 1961 as District Medical Officer, 12TH Naval District, and Director and Advisor on Medical Matters to Commander Western Sea Frontier until his retirement, effective 1 Jul 1963.

Admiral Hays was a Fellow of the American College of Surgeons, a Diplomate of the American Board of General Surgery, and a member of the American Medical Association. He had the American Defense Service Medal with star, the American Campaign Medal, the Asiatic-Pacific Campaign Medal with three engagement stars, the WW II Victory Medal and the National Defense Service Medal.

Admiral Hays is survived by his wife, Julia, and a son.

RADM Herman D. Scarney, MC, USNR (Ret.) died 23 Feb 1973 at the age of 72. He was born in Paterson, N.J., on 22 Jan 1901, and received his B.S. degree at the University of Michigan. In 1925 he graduated from the University of Michigan School of Medicine, and subsequently did postgraduate work at Harvard University.

Admiral Scarney was a Fellow of the American College of Surgeons and a Fellow of the American Academy of Ophthalmology and Otolaryngology. He was also a member of the American Medical Association and the Association of Military Surgeons of the U.S.

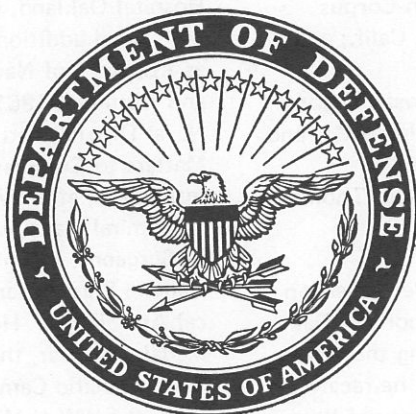
In Sept 1959 Admiral Scarney's name was placed on the Retired List in the grade of Rear Admiral. 🇺🇸

PASSING OF A FRIEND

OUR NAVY MAGAZINE, the oldest of the service-oriented periodicals, ceased publication with its Dec 1972 issue. The demise of the magazine resulted from decreased circulation and increased costs. Published since 1897, OUR NAVY was a quality effort whose passing is deplored. 🇺🇸

Secretary Laird:

'Draft Has Ended'



On January 27, the then Secretary of Defense, Melvin R. Laird, dispatched the following message to the Secretaries of the Army, Navy and Air Force, the Chairman of the Joint Chiefs of Staff, the Assistant Secretaries of Defense, the heads of Defense agencies and the unified and specified commands:

"With the signing of the peace agreement in Paris today, and after receiving a report from the Secretary of the Army that he foresees no need for further inductions, I wish to inform you that the Armed Forces henceforth will depend exclusively on volunteer soldiers, sailors, airmen and Marines. Use of the draft has ended.

"This means that we have beaten President Nixon's objective of zero draft calls by five months.

"I know that each of you will continue to do whatever is appropriate to support legislation to insure approval of additional incentives for our men and women as proposed in the Special Pay Incentives legislation. I am particularly concerned that without such legislation, it will be extremely difficult, if not impossible, to maintain the National Guard and Reserve at levels mandated by the Congress and as required by our Total Force Concept.

"I am confident that the Congress will continue to support those programs necessary to allow us to continue the zero-draft status we assume today.

"I am particularly hopeful that the Senate will promptly follow the lead of the House and enact the legislation giving added incentives for service from members of the health professions, so that the requirements for health services personnel can also be put on a volunteer basis.

"I want to congratulate you and your organizations for the magnificent work which has been done during the past four years in moving us from an armed force which was drafting 300,000 men a year to my decision today that use of the draft for our soldiers, sailors, airmen and marines is finished, and that the all-volunteer era—which our Commander-in-Chief, President Nixon, has promised the American people—is upon us."

UNITED STATES NAVY MEDICINE

CORRESPONDENCE AND CONTRIBUTIONS from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, *U.S. NAVY MEDICINE*, Code 18, Bureau of Medicine and Surgery, Washington, D.C. 20372.

NOTICES should be received not later than the third day of the month preceding the desired month of publication.

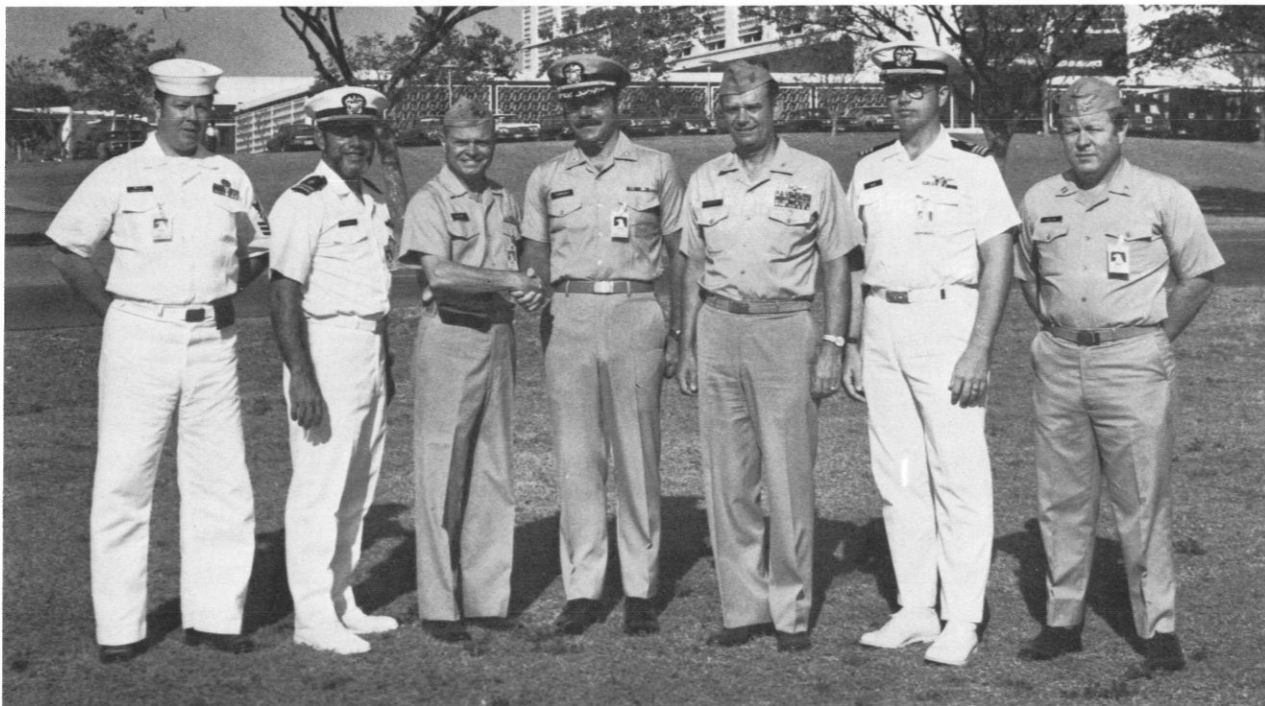
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PROMOTION AT POW PROCESSING SITE — CAPT D.C. Good, MC, USN (third from the left), and the Navy Medical Detachment serving at the Central Processing site for all returning POWs, stood by to congratulate Dr. Howard Kaminsky (center) on his recent promotion to the rank of CDR. Doing the honors was Deputy Commander of Operation Homecoming at Clark Air Force Base (AFB), CAPT Harold Griffith, USN (third from the right). Marking the event are, from left to right: HM1 Ed Allen, USN; LT W. Fregeau, MSC, USN; CAPT D.C. Good, MC, USN; CDR H. Kaminsky, MC, USN; CAPT H. Griffith, USN; LCDR W. Barry, MC, USN; and LT F. Mullins, MSC, USN.—PAO, Deputy Commander Navy, Operation Homecoming, Clark AFB, APO San Francisco.

U.S. NAVY MEDICINE